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OF

MESMERISM  
AND  
PSYCHOLOGY.

IN TWO VOLUMES.

COMPRISING

Philosophy of Mesmerism,  
On Fascination.

Electrical Psychology,  
The Macrocosm.

Science of the Soul.

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“ All are the parts of one stupendous whole,  
Whose Body Nature is, and God the Soul.”

---

VOL. I.

NEW YORK:  
FOWLER AND WELLS, PUBLISHERS,  
No. 389 BROADWAY.



THE  
MACROCOSM AND MICROCOSM;

OR, THE

UNIVERSE WITHOUT AND THE UNIVERSE WITHIN:

BEING

AN UNFOLDING OF THE PLAN OF CREATION AND THE CORRESPONDENCE OF TRUTHS, BOTH IN

THE WORLD OF SENSE AND THE WORLD OF SOUL.

In Two Parts

BY WILLIAM FISHBOUGH.

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PART I.

THE MACROCOSM; OR, THE UNIVERSE WITHOUT.

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Nature is a harp of SEVEN TIMES SEVEN strings  
On which, by God's own hand, is gently played  
The ever-varied music of the spheres.

NEW YORK:  
FOWLER AND WELLS, PUBLISHERS,  
NO. 389 BROADWAY.

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## P R E F A C E .

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IN submitting the accompanying Treatise to the public, it may be proper to precede it by a few facts and remarks relative to its origin, plan, and purpose. In the summer of 1849, on retiring from the editorial charge of a Philosophical Journal, the writer announced his intention to prepare and publish, as soon as convenient, a work on Psychology—a subject then, as now, exciting much interest among a class of readers with whom he had been holding weekly communion. A manuscript of such a work was, during the few ensuing months, nearly finished; but various circumstances and considerations arose to prevent its publication, among the chief of which were, first, that with the materials of psychological science then unfolded, I found it impossible to bring the work to a desired state of perfection; and, secondly, that facts and principles such I was then able, only, to set forth, were already rapidly forcing themselves into general notice in another way. I concluded, therefore, to await the unfolding of further light upon a subject of which, at that time, no one could claim more than a very superficial knowledge, and to postpone the publication of the results of my investigations until they were further matured, and until the state of the public mind, upon questions to which they related, gave a fair indication that some particular use, not accomplished by other developments, might be possibly subserved in submitting them to general perusal. These statements involve an explanation and apology to a large portion of my former readers, who, as I learn, felt disappointed at the non-appearance of the announced publication at the time it was expected, and whose letters of inquiry respecting it I have, in some instances, been reluctantly compelled to leave unanswered.

As investigations have been continued upon the great subject of Psychology, together with its cognate and still higher themes, it has, of course, greatly expanded; until, in the aspect which the question finally assumed, it was perceived to be impossible to give any adequate exposition of the great realm of being *within* man, without the

aid of some more enlarged, systematic, and *interior* exposition than any which was yet generally extant, of the great realm of being *without*, which serves to the former as a natural counterpart and exponent.

Feeling, therefore, an embarrassment at the thought of writing upon the interior constitution, laws, and susceptibilities of man, without the comprehensive basis of a general material philosophy so universally harmonized and compacted, as to bring nature without into the obvious analogy of a single human being, and thus into an aspect in which it might be constantly drawn upon for comparisons and illustrations, I accordingly determined to precede my proposed anthropological Treatise by a general disquisition upon the realm of exterior being, which I have called the "MACROCOSM," in contradistinction to the human physical and psychical constitution, which I have called the "MICROCOSM." Both Treatises were, at first, designed to be submitted in one volume; but as it was perceived that each would embrace a subject which is complete in itself, though intimately connected with the other, it was finally determined to issue them separately.

In speaking briefly of the further objects and general plan of the present work, I will premise that the whole realm of created being, natural, psychological, and even spiritual, forms (at least in the general sense) one perfectly united System, consistent and harmonious in all its parts and interactivities. To this proposition the reason and intuition of every well-constituted human mind responds an instant assent. But a reliable conception of the universal *plan* of this complex unity of created being, has hitherto undeniably been a grand desideratum of philosophy; and, reasoning superficially only from the objects which come within the scope of the five exterior senses, and without the aid of any grand fundamental and interior Principle to connect and harmonize all things, in serial and graduated orders, from the common primary cause to ultimate effects—men have cherished theories ever conflicting, ever varying, and necessarily ever disfigured, more or less, with essential errors and imperfections. I have ventured to hope that this defect in the mode of philosophizing might prove to be in some good degree supplied by a discovery, the fundamental principles of which came into my mind some four years ago, in a manner quite extraordinary, but of which I need not now speak particularly. This discovery, which I have called "*the law of the seven-fold correspondential series*," or "*the harmonial scale of creation*," is, to some extent, unfolded and

applied in the present volume, though but a small portion of the evidences of its truth, and the instances of its applicability, are herein exhibited.

The main idea embraced in the discovery referred to is, that each complete system, or sub-system of creation, however great or small, is resolvable into seven serial parts or elemental degrees, corresponding to the seven notes of the diatonic scale; that, as composed of such parts, the systems are arranged side by side, or one above another, as so many octaves, corresponding to the octaves in music; and that, like them, each one serves as a general exponent of all the others, whether on a higher or lower scale. This idea, with its natural adjuncts, of which I can not here speak particularly, by harmonizing and unitizing all natural series and degrees of creation, also clearly illustrates the fact that all truths are involved in, and evolved from, one grand *central* Truth; that they are, indeed, but parts and degrees of that one fundamental truth, which are ultimated in the various forms of embodiment which compose the sum total of created existence. By pursuing the method of reasoning which this idea unfolds, I have endeavored to make one portion of the system of nature expose the secrets of another, and caused visible facts and invisible principles to mutually cast their light upon each other.

That this method might be pursued in the most reliable manner, observations are commenced upon the *surface* of the system of things, composed of those objects which are appreciable to the outer senses, and thence, by facts known particularly to geological and astronomical science, I have endeavored to rationally trace the system of outer being to its origin, to the primal condition of its materials, and to its Divine Cause. Assuming, thus, a position at the center of the universal field of thought, where all principles converge to a common focus, I have endeavored to survey, so far as possible, the vistas of creative development which thence diverge in all directions, and to observe truth in its progressive, serial, and orderly unfoldings, from center to superficies, from generals to particulars, from causes to effects, from origins to ultimates. Finding at this central position, the principles and germs of general unity and systematic order, which *must of necessity* be perpetual throughout all subsequent unfoldings, I have attempted, through a unitary and systematic order of combined analysis and synthesis, to show how the system of creation must have been

gradually unfolded into its present form, and to illustrate the harmonious principles, forms, movements, laws, and interactivities which now characterize it as a whole and in all its parts.

It has thus been the object to draw the bold outlines of a comprehensive primordial philosophy, and to contribute, so far as possible, to the establishment of a system of thought, in which all truths may be viewed in their serial, orderly, and *mutually explanatory* relations, from generals to particulars—a system whose internal, vitalizing principle will constantly tend to the absorption of all truths, and the elimination of all errors, in the same way in which the principles of music constantly tend to the appropriation of harmonies, and the elimination of discords. If I have succeeded even to the extent of unfolding, with *general* correctness, the *most general* principles of such a philosophy, the sure guide-boards and indices to something vastly more perfect of the same kind may be considered as established; and the key to all conceivable truth, whether relating to nature without, the soul within, the spirit world above, or to the Divine Author and Governor of all things, may, in some sense, be considered as in our possession; for no one can essentially err in regard to either of these subjects, so long as he stands in the light of a system which makes all truths the clear and certain exponents of each other.

I would invite particular attention to that feature of the present volume, by which the fundamentals of an elevated theology are preserved and established upon the very basis of those facts in science which have been thought to be rather pantheistic in their intimations.

Following, as it does, in some respects, a comparatively unbeaten path, this Treatise can not, of course, reasonably claim entire exemption from errors and imperfections. Such as it is, however, it is respectfully submitted to a candid and discerning public, with the hope that any criticism it may excite may not be exclusively *destructive*, but in some degree also *constructive*—that it may not only expose errors and imperfections (which should be faithfully done), but suggest *improvements*—so that by the combined intelligence of many, some closer approximations to the truth may be made than I dare presume to have yet attained, notwithstanding the degree of confidence I may have in the *general* correctness of the method which has been pursued, and the results to which it has conduced.

W. F.

WILLIAMSBURGH, *September 7th*, 1852.

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# THE MACROCOSM;

OR,

## THE UNIVERSE WITHOUT.

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### CHAPTER I.

#### THE COGNIZABLE AND THE COGNIZING

THE starting point of all thought and investigation with every human being, is his own interior consciousness. This, to every one, is the most absolutely fixed of all facts—the most positively certain of all certainties; and it is hence the position from which all other certainties and uncertainties, probabilities and improbabilities, possibilities and impossibilities, are estimated. But as from our individual centers of consciousness and intellection, we open our eyes and look without us, we find ourselves surrounded by appearances of various forms and conditions, near and remote, which act upon our physical, intellectual, and moral natures, and are reacted upon by us; and these active and re-active influences are, in some sense, at a constant equipoise. There is thus a universe *without*, and a universe *within* us—a universe of cognizable forms, principles, and conditions, and a universe

of cognizing faculties, the one being related to, and corresponding with, the other. It is a legitimate object and privilege of every inquiring mind to understand, in some degree, both of these universes; and in order to do this to the fullest extent, one must investigate each with a constant regard to its analogies with, and relations to, the other. For the purpose of mapping out, if possible, certain great outlines of the one united and harmonious system of truth as embracing both of these departments, an investigation of this kind is now proposed.

The forms of the outer universe are included in a few simple and comprehensive classifications, as they are arranged above or beneath each other in the scale of creation. Those beneath man, and which at present form the special subject of investigation, are embraced in the comprehensive divisions of animal, vegetable, mineral, geological, and astronomical or cosmical forms. Of these, singularly and in united groups, together with their more superficial properties, the interior soul gains a perception through some one or more of the sensational channels, known as *Touch, Taste, Sight, Hearing,* and *Smell*. Proceeding upon the basis of the impressions received through these avenues of sense, the *ratiocinative* faculty becomes the medium of some knowledge of the purposes and mutual relations of these, and of the laws by which they are governed; and, availing itself of the contributions of both *Sense* and *Reason*, at the same time that it draws, from its own interior and independent resources, the faculty of *Intuition* decides upon their causes, their life forces, and their more interior significations.

Conforming, therefore, to what, in this work, will be recognized as the true method of reasoning, it shall be our first

endeavor, by the aid of Sense, Reason, and Intuition, to trace *analytically* the *descending* scale of creation, from exteriors to interiors, from effects to causes, from ultimates to origins. If we can succeed by this process in establishing any reliable conclusions relative to the first, the elemental, and hence germinal form and condition whence sprang this universal system of things, we may then, in the light of these conclusions, proceed to retrace our steps *synthetically* upward through the successive series and degrees of natural unfolding, and in a general way discover *how* the system of creation, in its present completed form, came to exist, and also what are the prominent principles of its constitution and government. It is obvious that these combined processes of Analysis and Synthesis, if correctly pursued, will be far more efficient in unfolding the principles and laws harmoniously pervading and governing all parts of the united system of things, and in exhibiting the vital relations and sympathies subsisting between all forms and kingdoms of nature, than either one of these processes pursued singly, and without reference to the other.

In pursuing this process of inquiry, strict attention, of course, shall be paid to facts and principles already firmly fixed upon a true scientific basis: but so long as these are made the basis of further reasoning, and the line of investigation is pursued in strict obedience to the established laws of induction and the intuitions of the interior mind, I shall not consider myself restricted from exhibiting, and, in some instances, perhaps, even insisting upon, the conclusions to which this process may conduct, even though these may, in many cases, be unknown to the prevailing philosophy.

## CHAPTER II.

### DESCENDING SCALE OF TERRESTRIAL FORMS.

AMONG the systems of forms which surround man in the outer world, that most immediately related to him, and next below him in the scale of creation, is the *Animal Kingdom*. Immediately beneath this, serving as a substratum on which it rests, and the source from which it derives its subsistence, is the *Vegetable Kingdom*. This, again, rests upon the *Mineral Kingdom*, from which, as the next degree below it in the scale of existence, it derives *its* nourishment and physical support.

Then, beneath all these kingdoms, as an anterior condition on which their physical developments, as *complete systems*, necessarily depend, is the system of *Geological Formations*. These consist of various gradations, or of lower and higher stratifications, which were developed by degrees, and in successive periods of time. Each geological formation above the primary, contains petrifications of plants and animals of a degree of organization corresponding to the degree of progression in the earth's crust marked by the particular stratification in which they are found, the lowest organizations being associated with the most ancient fossiliferous rocks, and the highest with the most recent, showing a coincident progress in the inorganic and organic developments. Let us now trace downward the various geological stratifications, from highest to lowest, in order that our minds may, by successive steps, be conducted

to the terrestrial conditions which preceded them all, and served as the material Germ of their unfolding.

If we could find a section of the earth's crust in which all the geological stratifications existed in their completeness, and were arranged on horizontal planes, in their natural order of superposition, and if we should then proceed to dig vertically downward through the strata, we would first pass through layers of loam, fine sand, and gravel, of no very great or very definite thickness. We might find in this deposit the remains of plants and animals of existing species, together with the remains of man and of his works. This is the most recent, or what is called the *Alluvial Formation*. Next we would penetrate an irregular deposit of clay, sand, gravel, and small and large stones, more or less rounded by friction, and which is called the *Diluvial Formation*. We would next pass through layers of clay, sand, gravel, marl, etc., in greater or less degrees of consolidation, portions of which abound with the remains of animals and plants of species now mostly extinct. These deposits have been roughly estimated as having the aggregate thickness of about thirteen hundred feet, and constitute what is called the *Tertiary Formation*. Next we would penetrate through deposits of chalk, and strata of marlstone, ironstone, red sandstone, etc., to the depth of not less than five thousand feet, exhuming, as we proceeded, the remains of huge saurians and other animals of a comparatively low organization, and which became entirely extinct before the next superior formation commenced. These strata, with their distinctive fossils, are comprised in what is called the *Secondary Formation*. We would then descend through a system of deposits of not less than three thousand feet in thickness, consisting of strata of limestone, slate, ironstone, and mineral coal, constituting what is called the *Coal For.*

*mation.* We would after this descend, in succession, through strata of limestone, called the mountain or carboniferous limestone; through what is called the Old Red Sandstone, and thence through what is known as the Silurian and Cambrian systems of deposits. These stratifications, taken together, have been estimated by Dr. John Pye Smith, as measuring a thickness of not less than one hundred and thirty thousand feet. They abound with fossils which, with perhaps slight exceptions, and these confined to their higher portions, are exclusively marine; and the character and magnitude of some of these, and their invariableness of size and constitution as they occur in all latitudes, show that a high and unvarying temperature prevailed on all parts of our globe during the period when they flourished, which could not have depended, in any great degree, upon the solar rays, but is generally supposed to have been caused by radiations from subterranean fire, then more intense than at subsequent periods. This whole series of stratifications has been called the *Transition Formation*, comprising, in the period of its production, those changes in the physical conditions of the earth's surface, which were necessary to qualify it for the production of terrestrial vegetation and the healthy sustenance of air-breathing animals.

This completes the enumeration of the fossiliferous stratifications, which, according to some estimates, are of an aggregate thickness exceeding twenty miles! These all, including the remains of the plants and animals which subsisted during their respective epochs, were quietly deposited at the bottoms of oceans, estuaries, and lakes, and subsequently consolidated and petrified, and thus, as faithful records of the natural history of our planet, they have been preserved through the untold ages which have elapsed from the period of their living existence until present time!

As we have thus proceeded through the descending scale of geological and palæontological creations, we have seen that animal and vegetable organisms, whose remains are entombed in the rocks, become more and more simple. In the lowest of the fossiliferous rocks, the principal animal remains are of the class called the *Radiata*, which somewhat resemble plants, and form the connecting link with the Vegetable Kingdom; while the plants are mainly of a simple species of sea-weed, called *fucoïdes*. It is, however, presumable that more minute, and still more simple species preceded these, but of which, in consequence of the delicacy of their texture, all traces have become obliterated.

Immediately beneath the fossiliferous rocks, we came to thick strata of clay slate, hornblende slate, mica slate, gneiss, etc., which contain no organic remains, and are called the *Primary Stratified Rocks*. Immediately beneath these last strata, lies the *Granite*, which is unstratified, and appears to be the original and parent rock, from the comminuted and pulverized materials of which, combined with materials descending from the atmosphere, and evolved from the central mass of the earth, all the stratified rocks were subsequently formed.

Some of my readers, who have not made geology a particular subject of study, may be disposed to inquire whether any one has thus actually digged into the earth to the depth of over twenty miles, and ascertained the character and order of geological formations to be as I have described them? I answer, no; nor would such a mode of exploration have been necessary. Owing to the immense and frequent disturbances to which the earth's crust has been subjected, in different ages, from the explosive forces of internal fires, all the older strata have, in various places, been broken, and their upheaved

edges have thus been exposed at the surface of the earth, and may be measured with little difficulty. And, although in most, if not all, places, some of the strata are wanting, yet, by observing a number of the associated links in the chain of development in one place, and connecting and matching them with corresponding sections of the chain found in other places, and which extend higher or lower, the whole series may be, and has been, re-constructed with approximate accuracy and certainty. And by comparing the lithological characters of rocks, and especially the fossils which they contain, it is found that the order of development is invariably such as I have described, and is the same in all parts of the world.

It was said that the Granite, which seems to be the oldest of the rocks, underlying, as it does, all the stratified series, is itself *unstratified*. This is true, also, of its various modifications in the Porphyry, Basalt, and Greenstone. These rocks, therefore, could not have been formed, as other rocks were, by sedimentary deposits at the bottom of oceans and lakes. On the contrary, they bear unmistakable evidences of having been originally in a molten state from the action of intense heat. That no links may be wanting in the chain of our further inductions, some of these evidences require to be briefly stated, as follows :

It appears that, in many instances, after thick beds of stratified rocks, including some of the older members of the fossiliferous series, were formed immediately over the granitic rocks, the latter have flown upward, not only in hemispherical and conical, but sometimes in sharply angular forms, displacing the superincumbent strata, and producing mountain elevations. In the upheaving effort it has, apparently by injection, filled up the smallest crevices of the contiguous rocks, fre

quently bursting through them in various directions, forming "dykes" and veins with numerous branches, from an inch to hundreds of feet in diameter; and, coming up frequently through the entire thickness of the strata, it has flown over the top, where it has, often in large masses, subsequently consolidated. These dykes are often found to contain imbedded fragments of the identical rocks through which they appear to have forced their passage in their upward movement. The manner in which these fragments are imbedded, proves to a demonstration, that the mass by which they are surrounded was once in a *fluid state*, and that it subsequently became solid, as we now find it.

That the original fluidity of these injected rocks was produced by *heat*, is evident from the following, among other considerations: 1. The crystalline character of some of these rocks is such as could have been produced only by heat. 2. The chemical effects produced upon the stratified rocks by contact of the unstratified ones, are similar to those produced by dykes of recent lava. 3. The different unstratified rocks insensibly pass into each other, and indeed into modern lavas. Besides, the mineral composition of the rocks, as well as the form and position of the dykes, shows that their original fluidity could not have been the result of *water*, which is the only known natural element besides fire, to which their solution could possibly be attributed in any case.

But as the rocks of which we have spoken are *primary* rocks, and serve as the basis of all stratified rocks in all places, and as they must, therefore, have universally prevailed over the surface of the earth before any other rocks were formed, if their original state was that of igneous fluidity, it may be assumed that such was the condition of the whole globe—that it was one vast ball of molten lava! This is now gener-

ally the opinion of geologists, and is confirmed by the following, among other considerations :

1. The earth is not a perfect globe, but an oblate spheroid, flattened at the poles—the polar diameter being about twenty-six miles shorter than the equatorial. This is the form which it would necessarily have assumed from the centrifugal force caused by diurnal revolution, supposing it to have been originally in a fluid state.

2. There is good evidence that our planet is still a vast ball of liquid fire, surrounded by a thin crust, which, in thickness, bears no greater proportion to the general mass of the earth, than the egg-shell bears to the general mass of the egg. From careful observations which have been made during many years, upon the temperature of deep mines and the waters of artesian wells, in various parts of the world, it is found that, after descending beyond the reach of solar influence, the temperature *invariably increases, in all places*, at the average rate of about one degree Fahrenheit for every forty-five or fifty feet of descent. And this rule uniformly holds good to the greatest depths to which the earth has been penetrated.

Now, assuming fifty degrees as the average temperature at the surface of the earth, and taking the mean ratio of increase at one degree for every fifty feet of descent, we should, at this rate, at a depth of a little more than sixty-five miles, reach a temperature of seven thousand degrees, which would be sufficient to melt all known rocks. Supposing this state of igneous fusion to extend from the comparatively thin crust of the earth on all sides, to the center, we have still a mass of molten lava of more than seven thousand miles in diameter. If we suppose this mass to become sometimes agitated in its higher portions by internal gasses, or by the percolation of water through fissures in the superincumbent strata, we have a sufficient ex-

planation of earthquakes, volcanic eruptions, and of the immense mountain upheavels which have occurred at different epochs during the geological formations; while, aside from the hypothesis of internal fusion, the solution of these latter phenomena would be extremely difficult, if not impossible.

Thus have geologists reasoned, from substantial data, concerning the early state of our planet. But, though at this point the data of retrospective reasonings become less certain than those which have hitherto guided us, we may presume, as highly probable, not to say absolutely certain, that not even *this* was strictly the *primitive* state of our planet—that the matter which composes it was in conditions anterior and germinal even to this; and if we extend backward our chain of analogical inductions *in a direct line*, it will lead us to a condition of still more intense heat—heat that would be compatible only with the existence of matter in the form of *vapor*. It is, then, to say the least, an hypothesis certainly not *unreasonable*, that the matter of our earth was once in the state of igneous gas, from the cooling and condensation of which it assumed successively the fluid, and then its present superficially solid state. But for the present we offer this *only* as an hypothesis to which analogies thus far developed, directly point. Such further and more conclusive evidences of its truth, as scientific data now afford, will be incidentally brought into view as we proceed.

## CHAPTER III.

### THE NATURAL HISTORY OF THE SOLAR SYSTEM ANALOGICALLY RETRACED.

ADMITTING that the foregoing hypothesis as to the original condition of the earth's materials has any foundation in truth, we find in it the link which connects geology with astronomy. It must be borne in mind that the earth is only one member of the great family of planets belonging to the solar system; and it is fair to presume that the brothers and sisters of the same planetary family have the same, or a similar, origin—especially as they have the same oblately spheroidal form, and observe the same laws of diurnal and orbital revolution. If the earth, then, was originally in a state of igneous gas, so (we may suppose) were *they*; and before the incipient processes of spheroidation commenced, the materials of all of them may have commingled, and probably *did* commingle, together in one undistinguishable mass.

Though this hypothesis of an original gaseous state of the earth and planets rests upon a foundation of its *own* (being a portion of the chain of analogous developments prolonged directly backward from the links of substantial geological facts), it is precisely in accordance with the *nebular theory* of the origin of worlds and systems, which theory also rests upon independent grounds of reasoning. As a conviction of the general truthfulness of this theory is important as a basis of ulterior ideas to be presented in this treatise, the patient

attention of the reader is solicited while we briefly explain its nature, and unfold a summary of the evidences on which it is founded.

The idea that nebulæ, or loose masses of fiery vapor, which seemed to be floating in the depths of immensity, might form the materials out of which nature elaborated suns and planets, was originally propounded as a conjecture, by Sir William Herschel; but it was subsequently brought into more definite and tangible form by Laplace, Comte, Nichol, and others. The theory supposes that loose masses of nebulous vapor, at first without definite form or movement, gradually assumed, by virtue of gravitation, a regular spheroidal and rotating form, lightest at the circumference, and gradually increasing in density toward the center, at which point the greatest density is attained. It supposes that such forms were the original forms of suns—that the substance of these, in this diffused state, originally extended from their present condensed, solar spheres, to the outermost limits of the planetary systems which now revolve about them; and that by the combined processes of rotation and further condensation, successive and concentric rings were formed on the outer limits of the nebulous disks, of which we have a faint illustration in the rings of Saturn. These rings, it is thought, subsequently became broken up, when the matter composing them naturally agglomerated into spheres, which, by an analogous process of condensation and evolution of rings, produced planets and their satellites.

It is but just to remark that many of the supposed *nebulæ* which Herschel thought might form the materials of future suns and systems, have subsequently, by the application of powerful telescopes, and especially that of Lord Ross, been resolved into stars, apparently so close together as to cause the general hazy appearance which they present when viewed

with the naked eye, or through a telescope of low power. It is reasonably suspected that many of the still unresolved nebulæ might yield to a still higher telescopic power, were such available to science and art; and acting upon this supposition, some few astronomers have abandoned the nebular theory, in which they previously believed, and attempted to prove its impossibility. But in reference to this change of astronomical faith from *such* a cause, Professor Michell forcibly remarks, that "Herschel only adopted the [nebular] theory after he had resolved many hundred of the nebulæ into stars; and, if there ever existed a reason for accepting the truth of this remarkable speculation, that reason has been scarcely affected in any degree, by recent discoveries."

The phenomenon of *nebulous stars*, especially, still remains in its unimpaired force, as an argument for the probable truth of the theory in question. These stars are spherical bodies, bright in the center, from which there is a gradual shading off into undistinguishable dimness as the circumference is approached. They exist in all degrees of apparent concentration, from a diffused blur with a no very distinct nucleus, to a well defined star surrounded by a haze. What can these bodies be but masses of primeval matter, in various degrees of progression between their original, or most chaotic state, and that of fully developed suns and planets? But these are precisely the various conditions which the nebular theory supposes to take place during the different and progressive stages of the process by which suns and planets are ultimately formed.

A brief summary of the further proofs of the nebular theory may be presented as follows:

1. It has already been remarked that the earth is an oblate spheroid, flattened at the poles and bulged at the equator.

This same fact is also observed in relation to other planets, the *outer* ones, owing to the greater rapidity of their rotatory motions, being much more bulged and flattened than the inner ones. To the writer it is not a little surprising that this form of planetary bodies has not, of itself, established among astronomers the universal conviction that these bodies were formed by a *contraction* of their materials from a previously diffused state. Such, it appears, must necessarily have been the case, if their superior equatorial diameter had, in its origin, any connection with the centrifugal force produced by rotatory motion. For if the materials of the planet, while in an originally globular form, had *commenced* being thrown *outward* at the equator, by the centrifugal force generated by revolution, no known counter-force could have prevented them from being all, or nearly all, thrown outward, and continually farther and farther from the center, until the planet would have lost its identity. Especially would this have been the result, if the original velocity of revolution had continued undiminished. For it is evident that the farther a particle, or collection of particles, is thrown from an axis around which they, in a given period, may revolve, the greater is the centrifugal force generated by the rotation, and hence the greater is its tendency to fly off still farther; while, on the other hand, the farther a particle is thrown from a center of attraction, the less becomes the attractive or centripetal force to retain it from flying off still farther.

The forces which produced the bulged form of planets at the equator are undoubtedly the same as those which produced the rings of Saturn. Now, the rings of Saturn complete a revolution in 10 hours 32 minutes and 15 seconds; while the primary itself revolves in 10 hours 16 minutes and 1 second, or in a period of only 16 minutes and 14 seconds

less. If, therefore, there was originally generated, by rotatory motion, at Saturn's equator, an amount of centrifugal force sufficient to throw off particles to the present position of the rings of that body, certainly the *immensely increased* centrifugal force generated by the revolution of those rings in about the *same period*, would have thrown the *same* particles still farther, and would probably have dissipated them into chaos—especially as the attractive force of the primary, at that distance, must have exerted considerably less influence upon them.

The same reasoning applies with equal force to that ring, or circle of *attached* matter, which rises above the line of sphericity at Saturn's equator, and also at the equators of other planets, and of the earth. The acting forces are of the same nature, and bear similar relations to each other in both places, the only difference being a difference in the degrees of intensity with which they act in the different positions.

These considerations show that in all stages of the process by which planetary bodies were formed, the *attractive, contractive, or centripetal force, had decided predominance over the centrifugal*. Supposing the two forces to have always acted together after both became established, the centrifugal force, it is true, must have always *restrained* and *modified* the intensity of the centripetal, in the direction of the plane of rotation, but could never throw farther into space a particle which the centripetal or attractive, had succeeded, in defiance of the opposing, force, in bringing from a greater to a less distance from the center.

The bulged form of the earth and other planets, therefore, *could not* have been produced by a *throwing out* of particles at the equator, but rather by a *drawing in* of particles from the poles, where the attractive force was comparatively unre-

strained by the centrifugal; while this latter force, attaining its maximum at the equator, meets and wards off the gravitating particles in their rush toward the center, and thus the two forces finally settle into an exact equipoise, of which the oblately spheroidal form of the planet is an equally exact expression.

These considerations seem to sufficiently prove that the earth (before shown to have been originally in a state of igneous, if not gaseous fluid) was formed by the predominating force of attraction, and hence *contraction*, acting upon materials in a rarer state, and reducing them to their present dense form. The attractive and contractive operation must, of course, have proceeded through a progressive series of analogous stages, which somewhere must have had a *beginning*; and we can not conceive of any possible beginning short of the greatest possible diffusion—a state of diffusion which, originally applying to the materials of all planets, must have brought them all into the form of one common vapory mass.

Though this argument, in proof of the nebular theory, seems hitherto to have generally escaped the notice of astronomical writers, it is one which, nevertheless, deserves to be pondered and borne in mind.

2. Another argument for the same theory, is derived from the regular gradations of densities of planets, from innermost to outermost. Thus it is stated, on the basis of mathematical calculations, that Mercury must be about the weight of so much lead; Venus is nearly six times the weight of so much water; the Earth, as a whole, is four and a half times the weight of water; Mars is a little over three times the weight of water; Jupiter is a small fraction over the weight of so much water; Saturn is less than half that specific weight, or

about the weight of so much cork; and Herschel manifests a corresponding decrease of density. This regular gradation in the specific densities of the planets, in the order of their occurrence, from innermost to outermost, is precisely what it should be, supposing that they were all formed by the operations of a common law, from an original sphere of fluid matter, which must have been most dense near the center, and most rare on its outer extremities.

There is a similar relation between the *distances* of the different planets; for, proceeding outward from Mercury, each successive planet (including the asteroids as equivalent to one planet) is about *double* the distance of the previous planet from the sun. This curious relation of distances seems, in like manner, to argue their production by a common cause, and by the operations of a common law, of which the only explanation yet found seems to be given in the nebular theory.

3. If the theory in question is admitted as the true one, it might accordingly be supposed, that after the evolution of Mercury, which is the planet nearest the sun, there would still be a residuum of nebulous or planetary matter in an unformed state, surrounding the more dense mass of the sun. Accordingly there actually appears to be an extensive mass of attenuated matter surrounding the sun, and is sometimes visible immediately after sunset, or before sunrise, as a conic, luminous streak, projected from the horizon in the direction of the path of the sun, and which is called the "Zodiacal light."

4. There are still many planets, or *wandering* celestial bodies, in a *nebulous state*, in which state they are called "comets." These appear to have been formed from a residuum of attenuated matter, after the agglomeration of the denser materials took place.

5. M. Comte, of Paris, has proved, according to principles by which periods of rotation maintain a relation to the mass of the given rotating body, that the sidereal year of each planet actually corresponds to the period in which the sun must have rotated on his axis, supposing his mass to have extended to the orbits of such planets; and he also ascertained that the periods of rotation of the primary planets with their mass, in a state of vapor, extending to the orbits of their satellites, must, in like manner, have corresponded with the present orbital periods of those satellites.

6. A new planetary law has recently been discovered by Mr. Kirkwood, which seems to have an important bearing on the question at issue. This law, as I understand it, is, that the square of the number of rotations of any given planet in its year, is to the square of the number of rotations of any other planet in its year, as the cube of the diameter of the sphere of attraction of the first planet, is to the cube of the diameter of the sphere of attraction of the second planet.\* Thus, for instance, the number of rotations of the earth in its year, bears a definite relation to the quantity of matter (or the amount of attractive force) in the Earth, in Mars, and in Venus.

Here, then, is an indication of another relation existing between the forces and movements of the different planets, so definite as to preclude every reasonable supposition that it came by *chance*, and a relation which, in common with facts before noticed, seems to refer all the planets to a common parentage, and common law of production, which is accounted for only by the nebular theory. Certainly so many remark-

\* The sphere of attraction of a planet, is a circle whose radius is determined by the point between two contiguous planets in conjunction, where an object would be attracted to neither of them, but would be exactly poised between the two contending forces. For an account of Kirkwood's discovery, see Silliman's *American Journal of Science*, Vol. ix., Second Series, p. 395.

ably concurrent facts, pointing to the same conclusion as to the origin of our planetary system, can not reasonably be set down as so many mere fortuitous coincidences.

Finally, the theory in question is the only one which does not either involve inexplicable and inconceivable mysteries, or suppositions totally unfounded in any of the known laws of causation. This theory, on the other hand, commends itself to human reason and intuition, without being encumbered with any serious difficulties; and, as it is confessedly unphilosophical to look for an explanation of a phenomenon *without* the sphere of known natural laws, when a full explanation may be found within the sphere of those laws, the nebular theory may be considered as *established*, at least until it is invalidated by further discoveries.

## CHAPTER IV.

### THE NATURAL HISTORY OF THE SIDEREAL UNIVERSE ANALOGICALLY RETRACED.

FROM contemplations of our own solar system, let us now extend our observations and reflections into the immeasurable realms of the stellar universe beyond, and see what gleams of light we can obtain in reference to the natural history of that grand System of systems, of which our own congeries of worlds forms, as it were, but an atom. Facts and analogies which need not here be particularized, have established the universal belief among astronomers that the so-called "fixed" stars are but so many remote suns shining to other systems. These are not distributed equally through the celestial spaces, as though they had been scattered at random from an Omnipotent hand; but they are arranged in distinct *clusters*, or firmaments, so called, which have little or no apparent connection with each other. Telescopic observations have proved that the bright girdle called the "Milky Way," which surrounds our heavens, is only a grand congeries of stars, so remote, and owing to their remoteness from us, apparently so near to each other, that their intermingling rays reach us only in the appearance of a confused whitish light. Of this vast zone of shining orbs, all the less remote stars, including our own sun, are members, their varying directions being, in a measure, the result of differences in their distances from the point of observation, and hence, of the different angles at which they are viewed.

Not only have the relative distances of various portions of this grand cluster been proximately determined, but the spaces beyond have been sounded. The process by which these results have been accomplished, may be easily brought within the reader's comprehension by the following illustrations: Suppose any given object is removed from a point of observation to a distance at which it is barely discernible by the naked eye. Now, a telescope which has the power of penetrating space to ten times the distance that can be reached with the naked eye, would show that same object, with the same degree of distinctness, ten times as far off. Take, then, a telescope of twenty degrees of space-penetrating power, and remove the object twenty times its first distance, and it will still be seen with equal distinctness and apparent nearness. And so also of still larger telescopes and correspondingly farther distances.

Now, when we gaze into the heavens on a clear night, with the naked eye, we observe, in any given portion of the Milky Way a distinct number of stars, the faintest of which are barely discernible. If the astronomer, then, takes a telescope of ten powers, as compared with the unassisted eye, and surveys the same field, all the stars before observed will appear with increased brilliancy, besides which many more will be visible, the remotest and faintest of which may be presumed to be ten times as far off as the farthest ones which previously appeared. He then takes a still larger telescope, and still more objects appear, the remotest of which may, in like manner, be presumed to be situated in a relative depth of space proportioned to the increased degree of telescopic power. So correspondingly of a larger, and still larger, instrument, until one is obtained which reveals no more stars, but only shows those in the same field of view, in increased brightness. The

space-penetrating power is again augmented, and still no more stars are brought into view. The observer, therefore, legitimately concludes that he has reached the *outer limits* of the great cluster to which we belong, and is now traversing the blank void beyond.

But is he to conclude that he has sounded the system of stellar creations to its remotest depths, and that beyond these boundaries, there are no more vestiges of the Creator's energy? Let him augment the optical power but one degree more, and perhaps in the dim and awful distance he will behold a faint and scarcely discernible speck or streak of whitish light. In the excitement of irrepressible curiosity, he hastens to direct to the spot the largest telescope the observatory affords, and that same whitish spot glows into myriads of beautiful stars—another galaxy or Milky Way—another firmament, perchance, displaying its glories to its own unnumbered worlds, and pealing its own notes of silent harmony, responsive to the movements of all kindred systems!

As by the indefatigable exertions of the two Herschels, the heavens have been swept by the telescope in all directions, more than two thousand five hundred of these isolated stellar systems have been brought to light, some smaller and some larger than the grand cluster in the midst of which our own sun and system are situated.

Let us now look at some of the phenomena which these vast starry congregations present, and from which inference may be drawn as to whether, in regard to their internal structure and laws, and hence their modes of origin, they have any thing in common with our own solar system, and whether the analogies of one may be applied in unfolding the mysteries of the other.

And the first thing that naturally attracts attention in such

an investigation, is the shapes and apparent relative densities of these starry clusters. By telescopic measurements of relative distances in relative directions, accomplished in the manner before illustrated, Sir William Herschel decided that the great cluster, of which our own sun is a member, and of which the greater portion of stars, owing to their immense distances, seem to rest on one general plain, and surround us in the great zone called the "Milky Way," is of an irregular form, approaching that of a circle, but thick in the middle, and thin toward the edges, in one of which there is a horizontal split or opening. Other clusters are of all conceivable forms, but of these forms the round, or oblately spheroidal, most prevails. Even in elongated, curved, angular, and branching clusters, there are often apparently several centers of incipient rotundity. Generally these centers are well defined, and toward them the stars, though with an inappreciable motion, are apparently flowing from all directions, becoming thicker and more compressed as they approach, and being thinner, and gradually shading off into invisibility, at more distant removes.

The general uniformity in the appearances of these spherical aggregations, and especially of their comparative denseness in the center, which thence gradually and regularly diminishes, in all directions, toward the circumference, shows that their aggregation is governed by some grand law; and what can this be but the familiar law of *Gravitation*—that identical law which, in the same form of action, is so potent in our own system, giving sphericity to every collection of fluid particles, from those which compose the planet, to those which form the dew-drop? It is gratifying to find in those remote creations such distinct indications of a property which is possessed in common with our own system, and which binds the nearest

and remotest forms in the celestial spaces, in one common bond of sympathy and brotherhood.

But the discovery of the law of gravitation, as applicable to these distant worlds as well as to the orbs of our own planetary system, naturally engenders the presumption that the *whole series* of laws and general operations with which gravitation is here necessarily connected, applies to them also, with little or no modification. And a further inquiry will disclose celestial phenomena which tend greatly to strengthen this presumption, if not to convert it into a positive conviction.

Contemplating our own solar system, we are struck with the fact that revolutionary motion every where prevails. The planets are constantly whirling upon their axes, and performing their grand orbital circuits in the heavens. The sun himself rotates upon his own center, once in about twenty-seven days. This revolution has been ascertained by the periodical variation of the position of spots on his disk.

But several of the stars of our firmament exhibit a phenomenon similar to this, from which our sun's rotatory motion has been inferred. That is, they alternately, and in *regular periods*, give forth a greater and a less degree of light, as though they had a brightest side and a side of a less degree of brightness, which were alternately, and at regular intervals, presented to us by a revolution upon their axes. This is one of the facts which have confirmed astronomers in the otherwise very natural presumption, that the stars are suns like our own, and whose apparent diminutiveness is only owing to their immense distances.

There are also many instances in which the varying relative positions of two or more stars are such as to indicate a revolution around each other, and around a *common center*. Some of these stars have vast periods, as, for instance, the double

star Castor, whose constituents revolve around each other in 215 years; Gamma, in the constellation of the Virgin, whose constituents revolve in 628 years; Gamma of the Lion, whose constituents revolve in 1200 years; and Mizar and Alcor, in the tail of the Great Bear, which, according to Professor Nichol, would probably consume not much less than the inconceivable period of 190,000 years in completing a single revolution around each other! Others accomplish their revolutions in much less than 100 years.

By establishing the fact that rotatory and orbital motions are experienced by many of the stars, the extreme probability is at the same time established on analogical grounds, that similar motions are experienced, with, perhaps, some modifications, by *all* stars. We are, at least, not without strong, not to say demonstrative evidence, that motions of this kind are going on in the celestial spaces, on a much grander scale than any we have yet described. By comparing the positions of the stars in the modern heavens with their positions as represented in ancient catalogues, Sir William Herschel found that in one quarter of the firmament, they were apparently drawing nigher together, while in the opposite quarter they were apparently receding from each other. To account for these changing appearances, Herschel conjectured that our own sun, with all his retinue of planets, was moving in some grand path toward a point in the constellation Hercules. After much doubt and many critical examinations, subsequent investigators have succeeded in establishing this opinion on an indubitable basis.

But in the hands of Argelander, Struve, Peters, and especially of Maedler, the theory of this solar motion was made to assume still more definite form. Inferring, with others, from analogy, that the path described by our luminary must be the

curve of an orbit around some remote center, the latter of these astronomers betook himself to the examination of ancient catalogues of stars, with a view to ascertain if there was any discoverable district in the heavens where all the apparent motions of the stars were such as to comply with the conditions which must necessarily characterize a central region. Such a district was found; and the star *ALCYONE*, in the cluster *Pleiades*, was decided to be its center. Around this point, therefore, our own sun, and the whole firmamental cluster to which it belongs, were supposed to be revolving with immense velocity, in orbits coincident with the general plane of the *Milky Way*, and requiring no less than eighteen millions of years to accomplish a single revolution!

Whatever diversity of opinion there may exist relative to the legitimacy of the conclusion of *Maedler*, which locates the center of alleged orbital motion at the point occupied by the star *Alcyone*, I believe it is now generally, if not universally admitted by astronomers, that such orbital motion does exist around *some* center, not very remote from that region.

The evidence upon this point greatly strengthens the analogy which, of itself, points to the conclusion that those isolated globular and other clusters of stars, situated in the remoter realms of space, and which appear to have been aggregated by internal power of gravitation, are also scenes of perpetual rotatory and orbital motion. Did not these motions, with their resultant centrifugal forces, exist to countervail, in some degree, the force of internal gravity, those firmamental clusters would doubtless exist in much more dense masses than those in which they now appear.

But if this conclusion thus approximates to a certainty, there are facts which point to a still more extended application of its principles. In the southern heavens, and quite

detached from the Milky Way, are two bright spots which southern navigators have designated by the name of "*Magellan's Clouds*." During his astronomical residence at the Cape of Good Hope some years ago, Sir John Herschel, by the aid of his twenty feet telescope, succeeded in analyzing these objects, and found that each of them, and especially the larger one, was a *system of firmaments*, combining many extensive clusters into one! Of these, *as systems*, analogy would authorize us to predicate internal gravity and general and particular rotatory and orbital motions. But the magnitude of this complex unity, however inconceivably great, may, after all, be but an atom in the immensity of ulterior creations to which it belongs; and, on the bases of its analogies, we may rise to the ideal of a still higher system—a system which may be supposed to embrace in its structure all the firmamental clusters, nebulæ, and systems of systems heretofore known to telescopic observers, and countless more besides.

Nor is the idea of such an all-comprehensive system of systems without the support of facts, as well as of analogies. It is said that although nebulæ, resolvable and irresolvable, appear in every quarter of the heavens, they appear in greatest abundance in a comparatively narrow zone which encircles the heavens, cutting the plane of the Milky Way at right angles. This arrangement goes far to establish the idea of a Firmament of firmaments, a Galaxy of galaxies, in which all sidereal creations which have come within the reach of the most powerful telescopes, are bound together in one common structure, brought within the sphere of the same common laws, and made to observe throughout, similar rotatory and orbital motions with those which prevail in our own solar system, which latter may be considered as an epitome and representative of the whole!

We have thus seen that wherever the wonders of the celestial spaces have been distinctly unfolded, the revolution of satellites around planets, of planets around suns, of suns around still greater suns, of systems around still greater systems, of clusters around still greater clusters, is revealed as an omniprevalent law. And seeing the complete unity of plan and harmony of operations so far as we have gone—seeing the affectionate co-relations which are exhibited between molecules, and worlds, and systems, and all stellar congregations, with all their included parts—may we not prolong the chain of analogy one link farther, and conclude that they all, together with the myriads of similar creations which dwell in depths of space which no optical power can ever penetrate, owe the bond of unity which connects them, and the harmonial influence which wields them in their mighty courses, to one grand Source of central power, whose attractions they all implicitly obey, and from whose genial radiations all receive their life? If the links of the analogical chain have been found to closely adhere through all the labyrinths of every realm of being whose existence may be verified by other processes, who shall begin to distrust that chain for the first time, after it has conducted us safely thus far?

Though the hypothesis of a common Pivot and Center of gravity of the whole universe may not, in the nature of things, be susceptible of an ocular or complete mathematical demonstration, yet there is interior evidence—I had almost said even the evidence of intuition—that it is true in *some* form; and I believe this idea is now extensively received as an article of astronomical faith.

Let no one suppose that amid these inconceivable distances and magnitudes, the fixed principles of reasoning lose their validity and become untrustworthy. It is true that in

these giddy flights, the imagination and conceptive powers become lost and bewildered; but so they do, in a great degree, before we have traveled beyond the immediate neighborhood of our own mundane sphere. The distance from the earth to our own sun is measured by millions of miles; and even this, as one of the shortest of astronomical distances, the imagination can but faintly conceive. The distance from the sun to the stars is measured by millions of diameters of the earth's orbit; the distance from firmament to firmament is measured by millions of interstellar spaces; the distance even of the *most interior* firmament from the great Center of all centers, may, in the efforts of the imagination, be measured by millions, or even billions of inter-firmamental spaces; and the circumference of the whole Grand Structure, may even transcend all human conceptions of *infinitude*; yet form, locality, relative position, center, circumference, and hence *limits*, must exist as absolutely as they exist in the smallest spherule of matter visible to the human eye; and to the view of an absolutely infinite Being, the whole Universe of universes may be of comparative dimensions not greater than a single grain of sand! And if Ehrenberg could, by the aid of the microscope, descry a whole animal kingdom in a single drop of water, each individual of the myriads of whose animated forms must have had eyes, teeth, stomach, intestines, and all the appurtenances of a complete anatomical structure, governed by unvarying physiological laws; and if by the same means he could demonstrate that a particular geological deposit, fourteen feet thick and miles in extent, was made up almost exclusively of the skeletons of animals, forty-one billions of which could exist in a single cubic inch, then we may rest assured that the principles of nature exist in no greater completeness, and in no higher or more inconceivable compli-

cations, in *infinites* than they do in *infinitesimals*. We may, then, without crowding out any natural principle, or doing violence to any just method of reasoning, reduce the scale of the universe, in our imagination, to dimensions convenient to be contemplated on all sides, and follow out our reasonings with ease and comparative certainty respecting its properties, forces, laws, internal arrangements, and progressive processes of formation, from beginnings to ultimates.

Considering, then, all general natural principles as applying equally to greatest and to smallest analogous cosmical forms, and to the whole universal structure as well as to its individual parts, we proceed to another branch of the chain of analogical reasoning, which will speedily conduct us to the primal condition of the *substance* from which the material universe and all it contains, was organized.

The nebular theory of planetary and solar formations, as applying to our solar system, has been shown to rest on so many probabilities as seemingly to justify the undoubting conviction of its truth. But if this theory is admitted as applicable to our own solar system, its applicability to formations in the sidereal realms will, after the foregoing system of universal analogies has been traced out, scarcely be disputed, especially as it was in the sidereal realms that the first facts were observed which seemed to intimate its truth. And if all planetary and solar agglomerations originated from previously diffused nebulous masses, then, in view of the unbroken chain which, we have seen, binds all systems together as *one* system, the following statement is its own sufficient proof:

As the satellites were formed from the same original nebulous mass from which the planets originated, so a prior state of that mass was a state of unity and interdiffusion with the mass which composed the sun. The materials of *that* mass,

in like manner, were previously connected and interdiffused with the mass which formed the more *interior* sun around which *it* revolves, and out of which were formed all such other ultimate suns as, in common with our own, now revolve around the same center. The substance of all suns and systems composing our firmament, may be supposed also to have been previously interdiffused in one amorphous, undistinguishable mass. So the substance of the suns and systems of all other firmaments, together with the substance of the great central sphere of universal attraction which binds and subordinates them all, was, in like manner, in an original nebulous and formless state; and the whole universal substance was then but *one* substance, so highly attenuated and expanded as to be without definite forms, divisions, or compartments—an indefinable, universal MONAD! In short, as our own solar system is a child of the great Universal System, and is formed in the image of its parent, the primal condition of the materials of one, must have been precisely analogous to that of the other; and if the solar system germinated from an original nebulæ, so did the system of the whole universe.

But in thus unraveling the complexity of all material formations, and tracing them all to an original, unitary, and chaotic state, we at the same time unravel the complexity of *motion*, and not only arrive at its original and simplest form, but at a state in which it must necessarily have had *no* form—a state in which its principles were as chaotic as original matter itself, or, what is the same thing, at a state in which *no established motion existed*.

We have thus arrived by an easy, and, admitting our premises, an apparently certain, process, at the very root of the Tree of universal material creations—at the great unitary Germ of all firmaments, suns, systems, and worlds, with the

mineral, vegetable, animal, and human forms which dwell upon their surfaces. If there has been any error in the foregoing reasonings, it has probably been an error in the *form* rather than in the *principles* of our conclusions, and the error therefore does not essentially effect the main object contemplated in this disquisition. But of the truth of the position to which we have arrived by this analytical process, from ultimates to origins, or from effects to causes, additional evidences will hereafter incidentally occur as we proceed, by an opposite and *synthetical* process, from causes to effects. The two processes will serve as mutual correctives of each other; and by the aid of both united, we hope to somewhat enlarge our truthful conceptions in relation to those principles, laws, and operations of the universe *without*, which naturally lie beyond the province of mathematics and ocular demonstration, but which, nevertheless, have their counterparts, representatives, and exponents in the universe *within*.

## CHAPTER V.

### MATERIAL BEGINNINGS AS POINTING TO A SUPER-MATERIAL CAUSE.

HAVING thus traced the system of material creation through a series of anterior conditions, comprehending periods which, perhaps, no assemblage of arithmetical figures could express, to a state in which the materials of all worlds, systems, and firmaments, were in a condition of diffused attenuated vapor, with no definite or established motions, the inquiry next arises, Was even *this* the absolutely *primitive* state of material things? Did matter ever exist in any *form* or *forms* previous to this state of chaos? or, if not, was it, in this state, eternal? or, if not absolutely eternal either in the state of forms or of chaos, whence and how did it originate?

The idea that matter ever existed in any mundane forms previous to this, and became subsequently dissolved, not only has no analogy to support it, but seems to be contradicted by an established law of nature. I refer to that law by which amorphous or chaotic matter in motion has the general and predominant tendency to assume and multiply *forms*. It is not denied that motion of particles tends also to the *dissolution* of material forms, but that dissolution is always subservient to immediate and higher recombinations. The kingdom of motion and forms, therefore, have ever been, and still are (and we may confidently believe ever will be), making farther and farther encroachments upon the realms of chaos and

inertia; and whatever is conquered by the former can never be *fully* reconquered by the latter. And this is because the former power is positive, and the latter is negative.

If matter, therefore, was ever in a state of mundane or organized forms previous to the chaotic state now under contemplation, it must have for ever continued in that same general state, and even to progressively unfold the tendencies by which its forms were assumed; and no natural power could have brought it back again to the formless state. The chaotic or nebulous state in which we have seen it must necessarily have existed at the beginning of the cosmical creation, may, therefore, be inferred to be its *primitive* state.

But that matter, even in this indefinite state, was absolutely *eternal*, is an idea which analogy, so far as it speaks upon the subject, distinctly contradicts.\* The material of each form and kingdom in nature may be traced *backward* from highest to lowest developments, immediately beyond which latter it loses itself in a more rudimental creation, which serves as its groundwork. Thus the animal kingdom, traced downward to its lowest and simplest forms, finally loses its character as animal, and merges into the vegetable; the vegetable, in like manner, finally loses itself in the mineral; the mineral or crystalline forms pass downward into the general amorphous mass of planetary matter; planetary matter may be traced downward through more rudimental geological conditions, and through igneous liquid, and aeriform fluid, until its distinction is lost in planetary nebula; this, in imagination, may be traced, in like manner, until it is lost in the general gaseous mass of the uncondensed sun; and so we may proceed, in retrograde steps, until we find the materials of all forms and

\* Let it be remarked, once for all, that by "matter," I mean *physical substance* in contradistinction to *spiritual substance*.

kingdoms are lost in the great common mass of original chaotic matter.

But in thus tracing back all forms and kingdoms to their respective and immediate predecessors, we at the same time trace backward the one and analogous kingdom of *Universal Matter as such* (which includes all the other kingdoms), from *its* highest to its lowest forms; and as there is a point beneath which all kingdoms lose their identity, and their essences are merged in an anterior kingdom, so analogy would seem to indicate that there is a prior point of attenuation and refinement at which the great kingdom of Matter also loses its character *as* matter or physical substance, and thus that it originated *as* matter, from a prior source, as did all its included sub-kingdoms. This idea would appear in greater clearness and force of probability, if contemplated in the light of the doctrine of Series, Degrees, and Correspondences, hereafter to be brought into view; and it will receive incidental confirmation as we proceed to consider the origin of Motion.

If (contrary to an extreme probability, not to say absolute certainty, established in previous remarks) the hypothesis is still insisted upon, that the chaotic matter of which this universe is composed, consists of the dissolved elements of a previous material universe, the question will still arise, Whence originated the matter composing *that* universe? And so we may extend our inquiries back through a thousand imagined pre-existent universes; but the mind must come to a resting-place *somewhere*. It is logically just as certain that there was a *first* universe (if we are mistaken in supposing that *this* is the first), as it is that there was a first vegetable form or class of forms, which latter proposition is positively demonstrated by facts in geology. And after we have gone back in imagination, to an absolutely *first* universe, the question will still

return unanswered, Whence originated the physical substance composing *that* universe?

As the line of progression traced backward necessarily leads to a *beginning* of the system of developments to which it applies, so the line of causation, inversely traced, necessarily leads to a *First Cause*, which is itself *uncaused*, though containing in itself the elements of all causes, and hence all existences. And as the whole Animal Kingdom, for example, necessarily rests upon the basis of a prior and immediately correlated and correspondent Kingdom—the Kingdom of Vegetation—so the whole Kingdom of *universal materiality*, so to speak, as necessarily rests upon the basis of a prior and immediately correlated and correspondent Kingdom. This Kingdom, then, must be *ultra-physical*, in the same way as the Vegetable Kingdom is ultra-animal; and it must differ in nature and constitution from the whole Kingdom of physical substance, at least as much as the Vegetable Kingdom differs from the Animal, or as the impelling and moving essence of the human mind differs from the impelled and moved essence of the human body.

Now, unless we suppose this ultra-physical (and hence *un-physical*) Kingdom to be a Kingdom of *Spirituality*, there is no conceptive power corresponding to it in the human mind, and hence it is to the human mind a *nothing*, and can not even be an object of thought, much less of faith.

But it may be asked, “Whence originated this Kingdom of Spirituality, which it is here alleged must have served as the basis of physical creation?” If we should answer that it originated in a higher and ulterior spirituality, and that *that* originated in a still higher, and *that* in a still higher; and if we could thus prolong our thoughts to an absolute eternity and in search of the Origin of origins, we would still have only

*spirituality*—an INFINITE REALM of Spirituality, beyond the idea of which our thoughts could not possibly go. We may set it down, then, as a conclusion which all analogy affirms, and which there is no conceivable reason to doubt, that this whole realm of Materiality, originated in this prior and correspondent Realm of SPIRITUALITY.

Now, spirituality, in its interior nature, possesses the properties of *affection, thought, and volition*, and these, again, are the attributes of *personality*. This ultimate, and hence infinite, Realm of Spirituality, therefore, involves the idea which we mean to convey by the term GOD: and the infinite series of *degrees* of spirituality of which the mind has just conceived in its search after the Origin of origins, may be supposed to correspond to the infinite series of degrees of the harmonious faculties of the one Infinite God, as these may be supposed to be represented in their ascending scale, from the most exterior portion of the Divine nature which connects with Materiality, to the most interior portions of the Divine Soul, which projects, generates, and vitalizes all things.

In saying, therefore, that the whole Kingdom of Physical Substance as such, originated in a prior and corresponding Kingdom of Spirituality, we, in effect, say that it originated in a Source possessing affection, intelligence, volition, and hence *personality*—in a Being, who, without any restraint or constraint from outer and physical influences (which did not then exist), could freely create, or abstain from creating, according to the internal promptings of his own Infinite Mind.

But let me not be understood as arguing that the matter of this universe was created by God out of *nothing*. The mind can not conceive of any such thing as nothing, or of something coming out of nothing; and therefore the idea may be at once dismissed from the mind as being itself a mental *nothing*. But

if we suppose that spirit is an *essence*, and that matter, as such, was created out of this essence, there will at least in this be no violation of the laws of thought; and the reasons on which such suppositions may be grounded will incidentally and more distinctly appear as we proceed.

There is a philosophy extant which insists that matter has *of itself* an *inherent* power of *motion*, and that matter (or physical substance) is *eternal*. But that this assumption is untenable, is obvious from the following considerations: Motion in matter, as shown before, necessarily tends to bring matter into *forms*; and if motion was from eternity in eternal matter, then matter must from eternity have been brought into forms—nay, into the *ultimate* and *highest* forms which that motion is qualified to engender. But as it is sensibly certain that these highest forms did not exist forever, and rationally certain that they must have ultimately sprung from a state of primeval chaos, it follows, of necessity, that motion in matter could not have been from eternity.

Moreover, if motion is an inherent property of matter, that motion must be the result of a *force* adequate to produce it; and that force must be either *mechanical* or *chemical*. But that matter contains of itself, and in itself, no *mechanical* force, is self-evident. Conceive of any body of matter, whether an atom or a world, being in a state of perfect rest: it is evident that that body has within itself no mechanical force adequate to move *itself*, much less to act upon kindred bodies. It is clear, therefore, that matter has within itself, and originally of itself, no mechanical force adequate to produce motion in any case; and, therefore, if a body at rest is not acted upon by an extraneous moving force, it will necessarily remain, for aught *mechanical* forces can do, in precisely the same place, and will possess precisely the same bulk and constituents, to

all eternity. This self-evident and generally recognized property of matter is called its *inertia*.

It is not denied that a *chemical* power—a power of expansion and condensation, or of altering the internal arrangements of particles—may be lodged in bodies of matter; *but this power is only the striving of particles for an equilibrium*. But unless there is a constantly active influence received from a *foreign* source, *the equilibrium must necessarily be finally attained*, and all action would then cease, never to be renewed by any inherent force, simply because such force is exhausted.

If we then consider the whole universal mass of physical substance, as the mass of particles supposed to be subject to this internal chemical action, that action, and its producing force, could not be eternal and unoriginated, because in that case it would manifestly, from eternity, have attained to an internal equilibrium, and all action would have ceased. These considerations show that even chemical action, and therefore chemical force, must have had a *beginning*, and therefore a *cause*, in some power or contriving agent *beyond* themselves, and outside of the matter in which they inhere.\* But as there was no other realm of physical matter from which they could be supplied, we are driven to the only other alternative of supposing that they were supplied from a *Spiritual* Source—from the personal Realm of affection, intelligence, and volition, which we have before proved to be unoriginated, and hence *infinite*.

If this reasoning is correct, then the conclusion is obvious, that all motion of whatever kind, as well as the physical substance acted upon by it, must have had an ultimate origin in Spirit—IN GOD!

\* It may be added, that chemical forces, as inherent properties of original, amorphous, nebulous matter, must have been exceedingly weak, if in such matter such *inherent* forces could have existed at all, which is extremely doubtful.

## CHAPTER VI.

### PRINCIPLES OF UNIVERSAL SYNTHESIS

WE have now completed our *descending* view of the realm of Being without us, and traced the material creation to its super-material—hence spiritual—hence *Divine*, Cause. The completion of this general *analysis* unfolds to us the true basis of all *synthesis*; and, keeping in view the Spirituality, Self-existence, and Divinity of the Original Cause, we may now proceed to inquire, what may be known, or legitimately believed, in relation to the origin, *modus operandi*, and government of Matter and Motion, and of all the subsequently established creations, systems, and kingdoms now comprised in the general fabric of outer Being?

I am aware, however, that many will be likely to consider questions of this nature as too far above the sphere of the human intellect, to justify an attempt even at the most *general* solution. But let us not be discouraged. It was intimated in the outset of the present treatise, that *nothing exists in the realm of being WITHOUT man, which has not an antitype and correspondent in the realm of being WITHIN him*, and that all which exists without, and all which exists within, *possess toward each other the relations of cognizable objects and principles, and cognizing faculties*. Besides, we have already found reason to believe that Law is unvarying; and if so, it may be traced in its operations, not only *inversely* from ultimates to origins of creation's unfoldings, but also *directly*

from origins to ultimates. And as the wonderful powers of analogy have conducted us with apparent safety through the immense labyrinths of the stellar creations, in our efforts to trace them downward to their common source, we should not despair of deriving some substantial aid from the same mode of reasoning, when applied to the solution of those more profound and important questions which are embraced in a *synthetical* investigation of the system of Being.

As forming the basis of the process of investigation now to be pursued, we here lay it down, as a self-evident proposition, *that each and every effect is germinally contained in its cause, and hence, when developed, necessarily corresponds to its cause.* Were this not the case, neither cause nor effect could properly be called such, and there could be no conceivable sequential relation between the two.

For example, in the order of tangible developments by which man is surrounded, the Vegetable Kingdom precedes, and serves as the material source, of the Animal Kingdom. It therefore forms the *material* element of the cause of the Animal Kingdom, though a more essential element of the cause of this and all other creations, is of a *spiritual* character, supplied from a source that is *above* the particular creation to which it applies, as will be further illustrated hereafter. But the two kingdoms, sustaining toward each other, as they do, the relations of the material element of a cause, and the material element of an effect, stand, thus far, as mutual correspondents and exponents of each other. In like manner, the Vegetable Kingdom stands as a material correspondent and exponent of the Mineral Kingdom, which is *its* material source and cause, and contains the fundamental *principles* of its composition and physical properties, though in a *lower degree*. So the Mineral Kingdom, in like manner, has its physical corre-

spondent in the mass of amorphous planetary matter which served as *its* source; and so, by like gradations, the chain of analogy carries our minds backward through planetary nebulæ, solar nebulæ, etc., until we come to the one great, universal, undivided mass of chaotic matter, which must necessarily have contained within itself, undeveloped, the material elements of stellar systems, solar systems, planets, minerals, vegetables, animals, and even the physical elements of the human constitution. Though indefinite in the extreme, this, in its occult properties and adaptations, must, as a universal material Germ, have involved the physical correspondences of all the creations which subsequently sprang from it, in the same way as the acorn involves the physical correspondences of the future oak; and by an intelligence capable of perceiving its interior properties and adaptations, it might have been *predicted*, in a general way, what kind of creations were destined to spring from it.

But as the Animal Kingdom, physically speaking, was previously contained in the Vegetable, and the Vegetable Kingdom was contained in the Mineral, and so on throughout the descending scale, so the great original, universal Kingdom of unformed matter, and whose undeveloped properties and principles were typical of all subsequent and subordinate Kingdoms, was itself as *one* Kingdom, previously involved in the infinite, eternal, and unoriginated Kingdom of Spirituality, which, as before shown, constitutes the DIVINE PERSONALITY. This Kingdom of Spirituality—in other words, the Divine Personal Being—comprises, therefore, not only the material (or substantial), but the spiritual and volitional, and hence the entire elements of the Cause of all things in universal creation; and hence the Creator and the created must stand as mutual exponents of each other.

That the great Kingdom of universal matter, and what, for the sake of perspicuity, we have called the great Kingdom of universal Spirit, stand in relations to each other similar to (though more comprehensive and perfect than) the relations subsisting between any two conjoined subordinate kingdoms in nature, is an idea which it is desired the reader should distinctly comprehend, as it lies at the foundation of all true, material, and spiritual philosophy, and will, as it is believed, tend to entirely reclaim science from the general tendency which it has long apparently had, to Pantheism and Atheism.

Considering that matter, *as such*, originated in the creative efforts of Spirit, and hence *Mind*, there is another point of view, from which it will appear that matter, both in its primeval state, and in all its subsequent states of mundane forms, must necessarily have been in exact correspondence with its Source and producing Cause. We know something of the nature and operations of Mind, by experience and consciousness. We know that the mind of the architect, for instance, constructs an edifice within itself, or within its own conceptions and thoughts—constructs it as an *invisible* and *spiritual* edifice—before proceeding to give it a physical form in the outer world. After the building is *physically* erected, therefore, it stands as a precise image and correspondent of its archetype or conception which first existed in the mind.

Applying these principles to the subject under present investigation, we may consider the Divine Thought as the Architect, and the universe, or any of its systematically organized stages of development, as the Edifice. Not only, then, must the archetype of the universe in its maturity, with all its harmonious worlds and systems, but even the archetypes of

those atomic and infinitesimal forms constituting original chaotic matter, have distinctly pre-existed in the Divine, spiritual, and mental constitution.\*

The Deity and the universe—the realm of Spirit and the realm of Matter—therefore, stand to each other in the relation of Archetype and Antitype—of Cause and Effect—and therefore the two, as before remarked, stand as mutual exponents of each other. In order, therefore, to arrive at some general conclusions in reference to the constitution and principles of creation as a whole, and also in respect to the constitution and principles of its included and correspondent sub-systems, let us first briefly interrogate Reason and Intuition in reference to some such general facts as we can comprehend, respecting the constitution of the Divine Being.

The only way in which we can obtain any definite and proper conception of the Divine Being, is by first conceiving of a true and undegenerated *human* being—such being the culminating point of all Divine creations, and hence the embodied representative of all the Divine affections. Although it is not the intention to base the propositions of this work on the authority of inspired writings (whatever *confirmations* of such writings may be *incidentally* developed in the course of our *philosophical* investigations), we can not, in this place, avoid noticing the biblical declaration that “God created man in his own image,” as impliedly sanctioning an endeavor on our part to understand all that we may comprehend of God, by a comparison of the knowledge we have of man. Spirit, indeed, is essentially of the same nature wherever found, whether existing in a finite or an infinite degree, though it is acknowledged

\* The idea of *Archetypes*, as here presented, was originally conceived by Plato, and formed a prominent feature of his philosophy; though the author here derives it from sources independent of Plato's teachings.

that it may exist in different shades of moral character as resulting from different combinations, developments, and directions of the faculties. Conceive, then, of a *perfectly* constituted man—a man whose physical, intellectual, and moral natures are in harmonious development, and then conceive this man to be expanded to *infinitude*, and you have the truest and highest conception of God of which the human mind is capable.

But it would be diverting the reader too far from the object of this portion of our treatise, to enter at present into an elaborate discussion of the question, What is man? This question shall be discussed at length in the second part of this work. But for the present we must confine ourselves to a few propositions which, to intelligent minds, will appear more or less self-evident, and of the truth of which, as well as of the ulterior positions which they will serve to illustrate, confirmation will accumulate as we proceed, until any reasonable doubts with which some minds may at first regard them, will, it is believed, be either greatly diminished or entirely dissipated.

Let it be apprehended, then, that the *most general* constituents of human personality, are three; viz., 1. Soul, or interior vitality, which is the seat of the affections; 2. Spirit, or the organized, pervading nerve-element, which, in its lower degrees, is the vehicle of sensation, and in its higher degrees, is the seat of the understanding; and 3. Body, or vehicle of outer manifestation and action.

Precisely corresponding to these are the three most comprehensive constituents of the *Divine* Being; viz., 1. Interior Soul, Life, or *Love*; 2. Spirit or *Wisdom*; 3. Outer sphere or vehicle of operative *Energy*, the latter corresponding to the *body* in *man*.

But the constituents, both of the human and Divine personality, considered in more detailed reference to elements, forms, and outer objectivities, are also, in each case, susceptible of a *seven-fold* division, which may be briefly stated as follows: 1. Subjective Love, or Love as an abstract quality of the personal essence; 2. Subjective Wisdom, or Wisdom as an abstract quality of the personal essence; 3. Subjective volition, or volition as an abstract power of the two previous elements combined, and a procedure from them both; 4. The essences having the properties of Love, Wisdom, and Volition, embodied in *personal organism*; 5. Objective Love, or Love as related to outer forms; 6. Objective Wisdom, or Wisdom as related to outer forms; 7. Habitation, or a complete system of outer objects and conditions related to the whole personal nature and desires, and in which such nature and desires become embodied and represented.

In man the elements of this seven-fold classification contain within themselves many corresponding sub-divisions, some of which are much more obvious than the foregoing general divisions, as will be seen when, in the course of our inquiries respecting the MICROCOSM or the universe within, it comes in order to discuss them. In God the elements of this seven-fold division may be presumed to contain an *infinite* number of sub-divisions, all of which are, in like manner, susceptible of corresponding seven-fold classifications; and their co-relations and inter-communications may be supposed to constitute the infinite harmonies and beatitudes of the Divine soul! Our object at this stage of our treatise, however, is little more than to unfold the *idea* of these classifications as a basis on which the great plan-work of creation may be conceived, leaving such evidences of their truthfulness as exist in the nature of things to be incidentally developed as we proceed.

This seven-fold classification of the principles of the Divine constitution, is probably what the inspired seer St. John had reference to when he spoke of the "seven Spirits of God which go out into all the earth." And it was undoubtedly the outgoings and efficient operations of these which produced the various seven-fold Divine antitypes which were shown to the same inspired seer under the forms of the seven churches of Asia Minor; the Lamb with seven horns and seven eyes; the book with seven seals, and their successive openings at seven different epochs; the seven angels with seven trumpets; the seven thunders; the seven last plagues, etc.\*

If it be true, then, that there are these seven natural divisions in the constituents of the one Divine Being, it is obvious that any system of creation or operation which presents a complete reflex of what is contained in the Divine Source from which it sprang, must contain a representation and outer expression of *each one* of these Divine constituents, and must therefore, as a whole, be also *seven-fold*.

But we have seen that Nature, as a Whole, is divided into many Systems, Kingdoms, or more properly speaking, *Discreet Degrees*, rising one above another. *Each one* of these Kingdoms or Degrees (as will gradually be illustrated in what follows) contains within itself the seven-fold series of parts, as the natural evolution, and reproduction, on a higher scale,

\* The number *seven* appears to have been anciently recognized as a general number of *completeness*, and as such it appears to have been habitually employed by the sacred writers. Thus, in their classifications, there were seven days (or periods) of creation; seven days of the week; seven years from one sabbatic year to another; seven times seven years from one jubilee to another, etc., (see by the aid of the concordance, the numerous instances in which the number seven occurs in the Old and New Testaments). Some of the ancient heathen nations, also, adopted the seven-fold classification as of extensive application, especially to spiritual and Divine things; and it was introduced by Pythagoras from India into Greece.

of the seven-fold series of the Degree or Kingdom immediately below it in the order of development; and all of these, separately and collectively, are evolutions from, and correspondents of, the Divine seven-fold Constitution, which is the Originator and Cause of all. Each one of these seven-fold series, moreover, corresponds to the diatonic scale in music, and which, with its seven constituent notes, is therefore its natural oral interpreter and exponent. Thus the various Degrees or Kingdoms of natural developments, may be considered as *octaves*, rising one above another, the same as the octaves in music. *Each octave exactly corresponds to, and harmonizes, note by note, with all other octaves, whether they be on a higher or lower scale; so that if we fully understand any octave, Degree, or Kingdom of natural development, we have in it a measure and exponent of all others.* Thus the system of nature, as a Whole, may be considered as one grand Musical Organ, compassing all these octaves, and which, in the hands of the Great Organist, the Divine Being, in whose infinite series of octaves of Love and Wisdom, exists the very soul and origin of *all* harmony, is capable of sending forth every where those silent notes of harmony and music which have been perceived and deeply felt, by every truly elevated and interiorly developed human soul!

The idea of the "music of the spheres," therefore, is not merely a poetic fancy, but a sublime reality, whose basis and origin are exhibited in the foregoing simple principles.

That this harmonial scale of creation, as corresponding to the harmonial scale of degrees of Love and Wisdom of the Divine Mind, is not a mere fanciful conception, will become more and more obvious as we proceed. It will be shown, that not only does each one of these degrees or octaves of

creation, by its correspondence with all others, serve as their natural exponent, but that each octave, if its constituents are correctly classified, rests upon internal evidence of its own. And if this serial order of graduated progression is duly recognized, and its laws are properly understood, we may use any seven-fold classification, *known* to be correct, in correcting the errors of others, just as the musician would correct the discords of one octave by the harmonies of another.

But before proceeding further, we must speak briefly of the *laws* which, as we proceed, will be seen to govern the septenary classifications, and by which it may be generally known whether any classification is correct. In each correct classification, the members, in their numerical order, may, in *general terms*, be distinguished as follows:

Number ONE is the number of *simple* unity.

Two is the number of *productive* unity, and in general terms comprises positive and negative, active and passive, or male and female, principles.

THREE is the number of *self-sustaining* unity.

FOUR is the number of *Organization*.

FIVE is the number of *exterior* completeness. There being five *exterior* properties to outer things, man, hence, has five *exterior* senses, whose object is to give information of them to the interior soul. As the five *exterior* properties also exist, with *express reference* to two *interior* and *higher* properties, the number five is also a number of *aspiration*, as will be better understood hereafter.

SIX is the number of subordinal association, and of harmonial, peripheral revolution, as around a governing center.

SEVEN is the number of final completeness, embracing both

exteriors and interiors. Hence it is the pivotal and governing number of the series.\*

This septinary classification may also be embodied in the *triad*. Thus the first, second, and third members of any seven-fold series, form one trinity, and therefore may count as a unit; the fourth, fifth, and sixth members form a second trinity, and count another unit; while the *seventh* member, which is always equal, or rather superior, to all the rest put together, forms a third unit, and completes a *general* trinity. As a guide to correctness in any septinary classification, it is important to observe that the first and second trinities in the series, should bear a certain general and particular *correspondence* with each other.

Whatever obscurities may at first exist in the foregoing statement, will be abundantly clarified by the illustrative examples which will incidentally occur as we proceed. It is here given mainly as a hint to the reader, that the classifications in which we shall have to deal, are not *arbitrary*, but founded in the nature of things. Considering, therefore, that each natural seven-fold series corresponds to, and illustrates every other, and that this septinary arrangement runs through every complete creation, system, and Kingdom in nature, the degree of reliance which may be placed on the legitimate results of the method of investigation now proposed, as well as the character and extent of those results, as compared with what may be obtained by other processes, may be illustrated as follows: Suppose there are a large number of timbers, hewn, squared, morticed, etc., and piled confusedly together.

\* The ancient inspired records also deal largely in the number *twelve* and its multiples, as an interiorly significant number. It may be remarked that the number twelve is evolved from the seven-fold series, and is simply the number of six productive unities, or positive and negative, active and passive, or male and female, principles. It is therefore, also, a number of subordinal association.

The superficial observer, uninstructed in the synthetical principles of architecture, may take most accurate measurements of each of those timbers, and may give most correct descriptions of their shapes, abstract qualities, etc., just as science, as ordinarily pursued, gives accurate descriptions of abstract facts which constitute the timbers of the great temple of Nature. Such an observer, however, may not be able to discover any intended *connection* between many of those timbers; may be able to form little or no idea of the form, proportions, or correlative parts of the building which they would constitute, if all put together, and may even doubt that they were ever all intended to go together in any definite form; and that science which merely *analyzes*, but does not *synthesize*, experiences much the same difficulty in viewing the timbers of the temple of Nature. But suppose, now, that a skillful architect comes on the ground: he views those apparently heterogeneous timbers, not only analytically (or in isolated detail), but also synthetically, or in their relations to each other; and, by the observance of simple rules, he proceeds—without any paring or forcing—perhaps without even the “noise of the hammer”—to erect a magnificent and glorious temple, in which there is a place for every timber, from greatest to smallest, and a timber for every place which requires one. Then even the previous superficial and merely *analytical* observer of the timbers will *know*, if he surveys the edifice, that those timbers were intended to go together precisely in the relations in which he now finds them; and that the rule or theory by which they are brought together, is *true*.

Suppose the observer noticed, however, that in the erection of the building, some of the timbers were a little pared, or forced, or warped, in order to make them join with

others: still, if the building, when erected, exhibits unmistakable indications of order, and symmetry, and harmony of its numerous parts, it stands as evidence of *general* truthfulness of the architectural rules by which it was erected; and, if it is then known that the hewer of those timbers was *absolutely perfect* in his art, the inference would be legitimate, that the paring and distortion used in putting them together, were owing to the ignorance or unskillfulness on the part of the builder, by which a joist or a post was occasionally inverted, or made to take the intended place of another of somewhat similar form.

Now, all natural facts (which, it must be confessed, the science and philosophy of the day view in an aspect *somewhat* heterogeneous) are *timbers* of the great temple of Nature. If we can find a method of classification, therefore, by which these various facts, as timbers, may be, without any warping or forcing, brought into the form of one grand system, among the myriads of the complicated parts of which there may be observed a mutual dependence and harmony so perfect, that the loss of a single part would sensibly mar the symmetry of the whole; then we may be assured that this method is the *true* one, and that the structure erected by it is a structure of truth. *Now, a system of classification of this kind must exist somewhere in nature, if it be admitted that nature is not, after all, a more or less heterogeneous and disconnected mass.* If the reader can not believe, with me, that the doctrine of the seven-fold series and its natural adjuncts, as herein briefly unfolded, constitutes that system, it is confidently believed that he will at least find it immensely suggestive, compelling nature, in many instances, to tell her own story, and to give up secrets which science and philosophy have hitherto been inadequate to wrest from

her grasp. For the several years which have elapsed since I was so fortunate as to be led to the discovery of this method of correspondential reasoning, I have pursued it with results which, to my own mind, at least, have been intensely satisfactory; and, I confess, that without its aid I could not have had any conceptions which might have been regarded even as an approximation to a solution of many of the questions discussed in this work.

## CHAPTER VII.

### THE SEVEN FUNDAMENTAL LAWS, AND THEIR INTIMATIONS RESPECTING THE ORIGIN AND STRUCTURE OF THE UNIVERSE.

DEEMING the foregoing a sufficient exposition of the principles which shall guide us in our further inquiries, we now proceed to our proposed *synthetical* investigation of the system of being without us. Pursuing the natural order of progression, from fundamentals and generals to ultimates and particulars, we will first institute some comprehensive inquiries respecting the origin, structure, government, etc., of the physical universe as a whole; and afterward, similar inquiries shall be pursued in relation to the Solar System, the planet on which we dwell, and the various systems of inanimate and animate creation which exist upon its surface, of which the ultimate and highest is the human organization.

And, in view of the new method of reasoning which we have unfolded, let it be borne in mind that if the origin, constitution, laws, functional operations, etc., of *any one* of the systematic creations proposed for investigation, can be elucidated directly and more clearly than any other, it will serve as a correspondential guide to the further elucidation of all the others. Thus, with a proper classification of the corresponding series and degrees of nature's unfoldings and operations, the known will cast the whole light of its analogies upon the unknown—just as each timber of a temple hints the shape and nature of the timbers with which it is to be conjoined, and

thus serves as a guide to the erection of the edifice; or, as a single fossil bone of an extinct and previously unknown animal, enables the comparative anatomist to describe with accuracy, the animal as it lived and moved upon the earth in its organic completeness. Our method, if successfully pursued, will, moreover, develop the unity of principle pervading, in different degrees, all creations, from lowest to highest—the unity and harmony, therefore, of the one and only system of universal truth; and, as we pursue the revelations of the physical universe, from its rudiments to its higher unfoldings, our thoughts, from the accumulating analogies, will gain such an upward impetus as may hereafter carry them directly through the line of those higher and corresponding truths, which relate to man physiologically, psychologically, spiritually—socially, politically, and religiously.

With respect to the origin, structure, laws, etc., of the universal cosmical system, we commence our reasonings with a postulate which, whether strictly true or not, can not lead us into important error in our subsequent deductions, since we have so many correctives of inharmony, as involved in the general series of corresponding and harmonious octaves of developments through which the path of our investigations will lead us. The postulate is, That God, from the promptings of his own interior soul, which is Love, under the direction of his Wisdom, which gave order and form to the operations of Love, formed from the most exterior, or, if the expression may be allowed, the least Divine and most nearly physical, portion of his own personal emanations, as many degrees, varieties, or perhaps classes of atomic particles, as corresponded to the general seven-fold harmonies of his own Infinite nature. The supposition that the varieties of these primitive atoms are, in number, just seven, or a multiple of

seven, is admitted to be purely *a priori*, but is a legitimate deduction from principles before established: it is here offered as an introduction to propositions more certain, and from which it, in its turn, will receive confirmation; though, if it could be proved to be untrue, it would not essentially affect our main argument. These varieties of atoms, then (*whatever* their number may have been), may be supposed to have constituted Matter in its primitive state, which probably was characterized by none of the distinctive properties of oxygen, hydrogen, nitrogen, calcium, potassium, or any others of the so-called "elements" known to chemistry. In being evolved, in particleized form, from the emanated personal Essence of the Divine Being, the substance thus particleized ceased to constitute any necessary portion of the Divine Person, and formed a Realm or degree of Being by itself, but still a Realm of Being *corresponding to, immediately connected with, and capable of receiving direct influx of vital energy from, the great Personal Realm of Spirit from which it proceeded.* This vital influx, however, may be supposed to have been altogether *optional* on the part of the great Generative Spirit, even as was the evolution and particleization of essence itself; and, without the direct communication to it, of an impelling energy from the Divine source of all energy, matter, thus constituted, would, as before shown, have forever remained inert.

We are next, therefore to inquire into the origin and laws of MOTION in this primeval chaotic mass.

Admitting, what was before proved, that *inertia* is an inseparable property of matter left solely to *itself*, it is self-evident that *Motion* could have been the product only of a *Force* adequate to overcome the tendency of matter to remain fixed. Though force is essentially of the same general nature

in whatsoever direction it may act, there are several modifications of the dynamic agents in which force originates. These, requiring, as they do, a separate chapter for their proper elucidation, shall only receive such allusions in this place as will be necessary to the explication of the *laws* by which force acts in producing motion, aggregation, segregation, reciprocal transference, and structural stability.

It has before been repeatedly remarked, that the universe without corresponds to the universe within man, and that therefore all principles and developments of the outer universe may be conceived of by the fully unfolded human faculties. This is because man is, physically and spiritually, an *epitome* of all previous Divine unfoldings, and therefore is a *microcosm* or little universe of himself. Though it is proposed to consider the discreet degrees of creation in their natural order of unfolding, tracing each octave as it passes upward and merges into a higher and corresponding one, until the whole merge (loosely speaking) into man; yet, for the purpose of illustrating the forces and laws of the physical universe by the same forces and laws which, in an ultimately sublimated degree, apply to man, we will here so far anticipate the appropriate subject of the second part of this work, as to exhibit the following self-evident truths respecting the human economy.

In man (the microcosm or little universe) there is, 1. Passion or Love, which corresponds to *Heat*; 2. Intelligence or Wisdom, which corresponds to light; 3. Nerve-essence, which corresponds to electricity (these three forming a *trinity*); 4. The agent which attracts circulating particles, and deposits them in the solid portions of the organism; 5. The agent which removes particles from lower tissues, and deposits them in higher; 6. The agent which acts and re-acts sympathetically between one organ and another (these three forming a second

and corresponding trinity of dynamic agents); and, 7. The interior, unitizing, and vital agent, which pervades and governs all the preceding.

Accompanying, and precisely answering to, these seven dynamic agents in man, are *seven laws*, or *modes*, by which the former operate. These are, 1. *Expansion*, governing all diastolic movements; 2. *Contraction*, governing all systolic movements; 3. *Circulation*, governing all rudimentally reciprocating movements (first trinity); 4. *Aggregation*, governing all depositing and organizing operations; 5. *Segregation*, governing all ascending movements; 6. The law governing all *sympathetic* movements (second trinity); 7. The law of all vital, unitizing, and governing operations, the vital and spiritual constitution as a whole being here the mover.

Now, in the macracosm, or great universe, we have, 1. Heat, which corresponds to Passion or Love; 2. Light, which corresponds to Intelligence or Wisdom; and 3. Electricity, which corresponds to nerve-essence, in the *little* universe—these forming a fundamental trinity of dynamic agents as operative in outer nature. There is also a second and corresponding trinity of dynamic agents in nature, and also a seventh and vitalizing agent, as corresponding to the same in man; but these important agents shall be illustrated hereafter. Assuming their existence for the present, however, we may remark, that, corresponding to these seven dynamic agents, there are also *seven laws* which govern the outer universe, and all its correspondent sub-creations, whether in the animate or inanimate departments of being. These laws, indeed, are the same throughout with those which we have seen to apply to man, though in lower creations they exist in lower degrees of development. They may be exhibited, with their ternary relations, in the following table:

PRIMARY TRINITY.	SECONDARY TRINITY.
1. Expansion.	4. Aggregation.
2. Contraction or Attraction.	5. Segregation.
3. Circulation.	6. Sympathetic reciprocation.
7. Vital complex unity.	

Here, it will be perceived, is a regularly graduated progression in the order of elements, ascending from first to last, as it were, through the different stratifications of one complete system. They maintain relations to each other similar to the relations of the different parts of a tree; viz., the first is the root of the series; the second is the trunk; the third is the branches; the fourth the leaves, and the completion of the organic form of the tree (wherefore, No 4. in any seven-fold series always corresponds to aggregation, organization, or association); No. 5 commences the segregative or reproductive process, and corresponds to the flower buds; No. 6 corresponds to the flowers, and No. 7 always corresponds to the fruit, embodying in itself the sublimated elements of the whole tree, together with the seed or germ of a future and corresponding creation.

The first trinity in the series approximately corresponds to the second, but the correspondence is rather by way of counterpart, or *antithesis*, than in any other way which may be easily defined; and in the general trinity, comprehending the whole septinity, may be observed a *general* correspondence with the sub-trinities.\*

These, let it be borne in mind, are claimed simply as the *fundamental* and *all-comprehensive* laws of natural and moral

\* These *general principles* of classification, not only in respect to dynamic agents and laws, but their corresponding forms and developments, are applicable to all natural series or octaves, and by duly comprehending and observing them, with the peculiar and relative characteristics of their parts, we may be able always to distinguish true from false classifications.

existence, saying nothing of those numerous *sub*-modes of operation, commonly called laws, which grow out of them. The essential principles of these general laws, in their simple and combined states, and in their various degrees of sublimation and ascension, as applicable to the different degrees of creation, will, we apprehend, be found to involve a sufficient explanation of every mode in which original Divine Force operates in the production of the various phenomena of creation.

Considering, then, that the primeval chaotic materials, out of which the universe was formed, did not originally, and of themselves, possess any force or motion, we proceed, in the light of the foregoing principles, to inquire more particularly Whence, and how, originated the forces, laws, and motions from whose diversified operations has resulted the stupendous system of being by which we are surrounded, and of which we are a part?—and what was the order of progressive development, and what is the general structural form of the cosmical universe, which must have legitimately resulted from these causes? And, as it has been before shown that all the *principles* that are involved in the *infinite*, may be epitomized in the *infinitesimal*, we may, for the sake of convenience, and without injury to the argument, reduce the subject of our contemplations to an imaginary scale of magnitude which may easily be conceived by the human mind, and which will allow of all progressive operations being surveyed as from a single stand-point.

The influence which may most naturally be conceived to have first acted upon primordial matter to impel it to ascending developments, was Divine Love. Now, Divine Love corresponds to *Heat*—is, indeed, spiritual heat itself, and thus is the first *expansive* impulse of mind. It is so in man, as well as in

the Deity ; and its correspondence with physical heat is instinctively recognized by the human mind, and is implied in the phraseology with which men naturally speak of it. Thus we speak of one in whom the love or passional principle predominates, as a “*warm-hearted man*,” as an “*ardent enthusiast*,” or as a man of “*fiery disposition*.” On the principle, therefore, that all bodies are developments from an interior soul, and all natural phenomena have an ultimate spiritual origin, we may conceive that while the great Kingdom of Matter was in such immediate relation and juxtaposition to the great Kingdom of Spirit, its Cause, Divine Love (or Divine Spiritual Heat) flowed directly into the Realm of Matter, and especially into its seventh or highest and proximately vital degree as being most in affinity with the Divine Spirit itself, and that the effect of this influx was an immediate generation of a corresponding *natural heat*.\* This heat must necessarily have been attended by an immediate *expansion* of the recipient particle or collection of particles, and by the evolution of a magnetic or *magnetoid* atmosphere partaking of the nature of the particle’s interior vitality. Divine Wisdom (or spiritual light) entering with, and acting through, the Love, pervades this atmosphere, and brings it into the nature of *physical light*, to which wisdom corresponds.†

The expansion resulting from the heat must necessarily have

\* That *natural heat* may be produced by what we have here termed *spiritual heat*, is shown by the fact, that when passion flows from the interior soul into the nervous tissues of the human body, it raises the general temperature of the body, quickens the circulations, produces a flush of the countenance, and a burning of the cheeks, and, in general, greatly increases the physical powers. It may be remarked, that the general principles of this portion of our theory were taught by the celebrated Swedenborg, though we have arrived at them by an independent process of induction.

† It is well known that natural light consists of *seven* prismatic rays ; and this fact hints at the corresponding *seven-fold* nature of Divine Wisdom, and hence, also, of Divine Love, its inseparable associate.

produced a comparative vacuum—that is, a vacuum in respect to those essences which were subjected to the expansion, and therefore produced a tendency to an absorption or rushing in of corresponding essences composing neighboring particles, and which had not yet, in the same degree, been acted upon by the expansive force. Moreover, the active light-sphere (or Wisdom-principle) which is an orderly procedure from Heat, (or Love), or accompaniment of, and the administrator to, its wants, formed a recognizing and sympathetic connection between the particle first acted upon and the particle immediately conterminous; and by an envelopment of the relatively passive particle in the light-sphere of the relatively active one, the former would become assimilated to the latter, and, floating to it through the circulating currents of the enveloping light-sphere, in the same way that the particle of iron floats to the magnet through currents of the magnetic essence, it would become incorporated with it as a part of the same body. Thus, as each particle is made the recipient of the essence of Divine Love, it lovingly opens its heart, and extends its ethereal arms to receive and embrace its brother, and the two thus become one. And being thus united, and becoming recipients for a further influx of heat, the same operation that before took place, is now repeated on a little larger scale, and more particles are attracted. And so the process continues to be repeated, until the minute nucleus of a CENTRAL SUN is fully established, which, by a continuation of the same process of unfolding, goes on to complete development, forming the whole universal mass of physical substance into one coherent and undivided Body, dense in the center, and gradually shading off into extreme levity toward the circumference.

If, instead of supposing this operation to commence in in-

infinitesimal particles, we suppose it to commence in a few cubic feet, or in hundreds, or thousands, or millions of cubic miles of central matter, or if we suppose (what is probably more nearly the truth) that all particles in the universal mass were simultaneously vitalized, *but in different degrees*, by the influx of Divine spiritual heat, and that each commenced forthwith, a tendency toward particles more vitalized than themselves, and all a tendency toward the particle *most* vitalized, the *principle* involved will be the same, and the ultimate result of the operation will be the same.

If the foregoing theory of the initial steps of the creative process is true, it not only affords us an example of the incipient operations, but an illustration of the very *cause* of gravitation, of which latter I believe no adequate explanation has yet been afforded by any of the common philosophies of the day. There are, however, in subsequent stages of the creative unfolding, higher elements and forces which enter into, modify, and render more definite, the phenomenon of gravitation, as will be seen.

The manner in which two streams of particles flowing from *opposite directions* toward a common center, tend to produce a *rotatory motion* in any collection of central particles, has been explained by those who have written on the nebular theory of the origin of worlds and their motions.\* The idea may be apprehended from the following illustration: Suppose that two balls of equal weight, are rolled with equal velocity, over the floor from opposite sides of a room, and that they at the same instant impinge upon a third ball lying at rest in the center of the floor. If the two strike the ball at rest in a line exactly cutting its center, no motion will be generated in the

\* See particularly Nichol's "Architecture of the Heavens."

latter ball. But there are a great many chances against both balls striking in such a line, and if we suppose a *constant stream* of balls (corresponding to particles) flowing inward toward the central ball, the probability of the latter being soon struck a little out of the line of its center, would amount to an almost absolute certainty. In case this should happen, a rotary motion of the central body would necessarily take place as a result of the *momentum* of the body or bodies impinging upon it, especially if the latter bodies, as a result of magnetic or other attraction, attach themselves permanently to the surface of the former while still under the influence of this momentum.

Suppose, then, there is a constant stream of bodies flowing inward from all directions toward the central body, as is supposed to be the case with particles of nebulous matter flowing inward toward a common center; the rotation of the central mass itself when once established, will, by the friction of its revolving atmosphere, if from no other cause, be sufficient to throw the approaching end of every radial line of gravitating particles out in the *same direction* from its center, and thus the momentum of every impinging particle will add to the tendency to central rotation. As the particles gradually establish relations with each other, through their various degrees of attenuation from center to circumference, rotation will gradually be established throughout the whole mass, the motion being relatively swift at the center, and gradually growing slower at every remove toward the circumference, where it is the slowest.

The idea has been illustrated by a reference to the effect produced by different currents of water flowing toward a common center, which effect is well known to be that of a *whirl*, rapid at the point of meeting, and growing more tardy at

every remove from said point, until it dies upon the shore, or is lost in the general motion of the stream.

If we have in these principles, as we appear to have, a sufficient account for the origin of all rotatory motion in the celestial spaces, it were certainly unphilosophical to look for its origin in any foreign or arbitrary impulse.

All the phenomena we have thus far considered, therefore, may be traced to the operations of two laws, viz., Expansion and Attraction—the first being based upon Heat, and the second upon Heat and Light combined—which elements, again, owe their origin to the corresponding principles of Divine Love and Wisdom, or *spiritual* Heat and Light. We come now to consider the operations and results of a third law—the law of *Circulation*.

While men of science have minutely traced the operations and phenomena of *gravitation*, they have taken comparatively little cognizance of any *reactive* force from the attracting body. Yet, without the aid of a reactive or emanative force, to counterbalance, in some measure, the gravitative power, it would be impossible to conceive, on rational principles, of the formation of any other body than the first and universal Body, which would selfishly absorb all materials, and give forth none. But it would only be in accordance with universal analogy, to suppose that while this constant *secretion* was going on, there was also as constantly kept up a countervailing process of *excretion*. Particles absorbed into the central mass (or, what is the same thing, the denser portion of the whole united mass), would, by the action of its superior vitality, undergo a *quasi* process of digestion, and portions of their essence would become refined and sublimated, and would be sent off again into space, to the *opposite* materials of which they would in their turn be *attracted*, in the same way as positive and negative

electricities are mutually attracted. As *all* gravitating particles can not go absolutely to the center (some being crowded out by others), and all emanated particles can not, for a similar reason, recede to the circumference, so each finds an equilibrium, and takes a position, between center and circumference, according to its specific density or levity. And now, a similar process of digestion necessarily goes on among gravitating and emanating particles which find their common equilibrium at any given distance from the center, and by their mutual action and reaction, another change and excretion takes place, and the rejected particles, being in a state exactly opposite to that of the particles thrown off from the great Center, now gravitate again toward that Center, there to experience and produce still further changes. Thus there is a constant action and reaction, flux and reflux, between center and circumference, and between all intermediate parts of the great mass; and the law governing this reciprocating movement is what we mean by the law of *Circulation*. It corresponds to circulation, or to the flux and reflux of venous and arterial blood to and from the heart in the little universe, or the human system, even as the laws of *Expansion* and *Attraction* (or contraction), before considered, correspond respectively to the diastolic and systolic motions of the heart, lungs, and perhaps the minute vesicles, or "corcula," of the brain. Being the third law of the universe, it corresponds to the third element of the Divine essential Constitution, which is the Divine Sphere of operative Energy, which, again, corresponds to the nerve-essence in man, and which latter corresponds to Electricity in the universe—this being actually the agent mainly concerned in the production of the phenomenon now under special consideration.

The laws of Expansion, Contraction, and Circulation, therefore, form a *trinity*, as dependent upon the triune elements

of Heat, Light, and Electricity; and which latter are related to the corresponding three-fold Divine spiritual elements of Love, Wisdom, and Vehicle of operative Energy.

The *Fourth* law, is a law of *Organization*, and brings the elements and motions previously developed, into a state of systematic and serial *Aggregation*.

Before rotatory motion is fully established in the mass of matter, the gravitating and emanating particles would proceed *toward*, and *from*, the center, in nearly *straight* lines. But after said motion is fully established, and becomes general throughout the mass, both kinds of particles would proceed in aberrent or *curved* lines, the curves corresponding to the direction of motion in the revolving matter—in the same manner in which a person attempting to row a boat in the direction of a radius of a circle or vortex of water flowing round a center, would, if he kept the side of his boat always square to the stream, be carried out of a direct line a distance proportioned to the rapidity of the current, and would thus describe a *curved* path.

But it is evident, for reasons already intimated, that neither can *all* the gravitating particles take, at any one time, a position *entirely* at the *center*, nor can all the emanating particles take a simultaneous position *entirely* at the circumference, but that each will assume a position with reference to the two extremes, where it finds an equilibrium, and will keep this position until a change fits it for another. Suppose, then, that a gravitating and emanating particle are in exactly opposite states to each other in respect to their degrees of *positiveness* or *negativeness*: it is evident that both particles would find a common equilibrium only at the same distance and position between the center and circumference. They would there meet, and by virtue of their elective affinities, form a union as male and female particles, and would assume

a *circular* or *orbital* motion, coincident with the rotating motion of the general mass, *which* MOTION *the united momenta of their previously gravitative and emanative movements would tend to sustain.*

Now, supposing that there were originally just seven kinds or classes of atomic particles (no matter into how many more kinds or classes these were susceptible of being subdivided), it is easy to perceive that the foregoing principles would probably involve something like the following results: one class of atoms, rejecting the immediate companionship of all others, would cluster around a central point, and form a sun. Each of the other six classes of atoms, in like manner, rejecting the immediate companionship of other atoms, while obeying the impulses of its internal and strongest affinities, would assume a general distance from the center determined by its specific point of equilibrium, and there, contracting upon itself, would form a mass of its own, in the general shape of a *ring*, surrounding the interior solar mass. Here we have a law of *deposition* and *aggregation*, corresponding to the law by which particles, circulating in the human blood, are deposited and aggregated in the form of muscle, cellular tissues, etc.

The universal system, as thus definitely organized, would, therefore, supposing that there are seven general varieties of matter, present the form of six concentric rings of nebulous matter, surrounding the seventh formation, which is the central sun. But if there were a greater or less number of kinds of matter, there would be a correspondingly greater or less number of rings, but all constructed on the same principle. Of this annular structure we have a general analogue, though on a small scale, in the rings of the planet Saturn, and also on a larger scale, in the annular nebulæ, of which there are a few examples in the heavens.

It should be added, however, that the idea of this concentric annular form of structure can only hold when associated with the supposition, that the primitive point of general gravitation was at, or near, the *center* of the chaotic mass. If the gravitative point was far out of the center, then the evolved masses, instead of assuming the forms of *circles*, would assume the form of *ellipses*, having a preponderance of their materials on one side of the sun, where, indeed, the *whole* might be subsequently drawn by the superior gravitating force of their major quantity, and form a separate revolving mass. In either case, however, the fundamental *principles* involved would be the same. But of the general prevalence of the annular, or, at least, elliptical form of structure, in the sidereal realms, there is a sufficiency of ocular proof, as incidentally exhibited in a previous chapter.

The FIFTH law, governing a corresponding fifth development, is the law of SEGREGATION, by which the materials of the previous annular formations, obeying *higher* and more *specific* elective affinities, separate into different masses, of *higher and lower degrees of refinement*.

The nature and *modus operandi* of this law, may be understood by the following considerations: The completion of the last or circular formation, brings the materials of the universe to a *triune degree* above their primeval or chaotic state. Of course, therefore, not only the essences, but the activities and inter-activities of the whole structure, are more refined, diversified, and systematic. Each nebulous ring is now itself a comparatively independent theater of molecular force and motion, and all of them act upon each other by their gravitative and emanative forces, while the central sun, as the great heart of the system, continues to send forth his vivifying and generative influence to all.

It is easy to conceive that the annular masses, being not only internally active, but penetrated in various directions by the refracted emanations from the central sun, would be liable to be rarefied at particular points and condensed at others, and thus to be shrunken and cleft apart, at particular lines and angles, and that by inherent action of the particles of the rings themselves, contraction would take place from these lines of cleavage, and that the materials previously united, would thus be segregated into separate masses. These masses would, on the same principle, be liable to be subdivided into inferior masses of greater or less number, in proportion to their respective original magnitudes. This whole process of segregation or fragmentation, is *faintly* illustrated by the breaking up of the clouds after a storm, and their resolution into separate masses.

According to principles before explained, each general mass, owing to its particles gravitating to a common center within itself, would assume a general rotatory motion which, for reasons which mathematicians will readily conceive, would necessarily conform in its direction to the revolution of the great ring of mundane materials to which it belonged, and each sub-mass would have a particular rotating motion of its own, which would conform to the motion of the general mass to which *it* belonged, *i. e.*, supposing that there were not in either case any *particular* or *incidental* causes of disturbance. Thus general masses and their included *sub*-masses, with their general and particular centers of gravitation and revolution, would, by further progression, form general stellar systems, and their included sub-systems, and finally, also, systems of planets and satellites, all of which latter would be evolved by the progressive unfoldings of the same principles heretofore explained as governing the formation of the *universal* structure.

In this way, therefore, as may be rationally supposed, originated all the nebulæ, clusters, stellar systems, or firmaments, which the telescope has revealed, together with untold millions of others of like nature, which lie forever concealed from mortal vision! In other words, each one of these originated from a fragment of the periphery of a great wheel or circle of nebulous materials, surrounding the great Center of all centers.

This hypothesis, relative to the origin of the stellar clusters, is not without strong confirmatory evidence in celestial appearances. I have suggested that the vivifying emanations from the central sun, acting upon the angular masses of nebulous matter, would produce planes of rarefaction and cleavage in various directions, from which planes each resultant insulated mass, as also each of its subordinate and included masses, would contract upon its own center. It is evident, therefore, that each general mass, with its included sub-masses, would first be of an *angular* form—on the same principle on which any cooling and contracting substance tends to separate into angular masses, and as is sometimes exemplified in the cleavages of igneous rocks. But, by the force of internal gravity, and the rotatory motion which, according to principles before explained, would naturally result therefrom, these nebulous masses would all tend, as they progressed, to assume the *elliptical* or *spherical* form. Now, this is precisely what is observed in relation to the nebulous and stellar masses of space. Some are of exceedingly irregular form, having long and sharp projections from their sides, and are of irregularly alternating degrees of density in their centers, as though they had, by variously intersecting forces, been subdivided into numerous inferior compartments. Commencing at these extreme irregularities, there are all

intermediate degrees of symmetry in shape, down to the perfectly globular shape, to which the prevailing forms of these stellar masses manifest more or less approximation. Judging from appearances, therefore, one would say that these masses are evidently in all degrees of progression, between rudimental and ultimate forms, and that, in general, those of the most angular forms are the *least*, while those of the globular form are the *most*, progressed.\* This is all manifestly in exact harmony with the hypothesis of nebular and angular segregation, and subsequent firmamental, solar, and planetary conglobation, which we have proposed.

Moreover, these nebular or stellar masses, although they appear in all directions in the heavens, are said to appear, as already intimated, in greatest abundance in the direction of a particular plane, which cuts the plane of our Milky Way at right angles. In the direction, *perpendicular* to this plane, they grow comparatively thin (as do the *stars* in the direction

\* In illustration of the progression from angularity and ellipticity to sphericity in these bodies, I may quote the following from the splendid work of Sir John Herschel, embodying the results of his observations at the Cape of Good Hope. With reference to the engraved figures of two particular nebulae existing in the southern heavens, he says: "These figures exhibit elliptical nebulae, normal in their character—that is to say, in which, as the condensation increases toward the middle, the ellipticity of the strata diminishes, or in which the interior and denser portions are obviously more nearly spherical than the exterior and rarer. A great number of such nebulae, of every variety of ellipticity and central condensation, are figured in my northern catalogue. Regarding the spherical as only a particular case of the elliptic form, and a stellar nucleus as only the extreme stage of condensation, at least nine-tenths of the whole nebulous contents of the heavens will be found to belong to this class; so that, as regards a law and a structure, the induction which refers them, as a class, to the operation of similar causes, and assumes the prevalence within them, of similar dynamical conditions, is most full and satisfactory. To abstain altogether from speculation as to what may be the nature of those causes and conditions, and to refuse all attempts to reconcile the phenomena of so large and so definite a class of cosmical existences, with mechanical laws, taken in their most general acceptance, would be to err on the side of excessive caution and philosophical timidity."—HERSCHEL'S *Results at the Cape of Good Hope*, p. 22.

perpendicular to the plane of the Milky Way), suggesting the idea of a very remote approximation to the horizontal boundary of the stratum. Though it is a thought bordering on the confines of the human conceptive powers, and thus penetrating somewhat into the realms of uncertainty and doubt, it may still be propounded as a query—Whether the plane of this grand stratum of sub-universes, may not indicate the *direction* of the plane of the great Ring of original nebulous materials, from which these nebulæ and stellar systems became segregated and resolved into their present forms, and whether all firmamental creations, revealed by the telescope, may not thus be included within a comparatively small fraction of a segment of *one* of the great cosmical rings which surround the Center of all centers? Though a question so profound can probably never be finally decided by the human intellect, the indication of this grand plane of cosmical formations, tends, so far as it bears upon the subject, to confirm our hypothesis, that all visible nebulæ and stellar systems, are segregations from one general mass of nebulous matter, originally existing on one general plane; and the analogies of all known definite motions and formations in the stellar spaces, point to the idea of a *circular* or elliptical form as characterizing this grand plane of creations.

While this theory gives definite form and order to the subject of our contemplations, it opens the mind to the most sublime conceptions of magnitudes and distances. Herschel estimated that his great telescope would reveal the existence of a star so far removed into space that light, traveling at the rate of twelve millions of miles in a minute, would require three thousand five hundred and forty-one years to pass from that star to our earth. Such, therefore, may be supposed to be the approximate distance of the remotest of those luminous

masses which were resolvable into stars by his telescope. He, however, computed that his large telescope would follow one of those large clusters, as a *general* mass, if plunged so deep into space that its light would require three hundred and fifty thousand years to reach us; and, it is thought that the great telescope of Lord Ross would pursue the same object to ten times that distance, or a distance which light, with its inconceivable velocity of motion, would consume more than three millions of years in traversing!\* This, therefore, may be assumed as the proximate distance of the *remotest* nebulæ rendered visible by Lord Ross's instrument. If, as is probable, all stellar creations, included in a sphere bounded on all sides by this enormous distance, constitute only a small fraction of a segment of one such circle of creations as we have supposed to surround the great common Center of attraction, it would not be advisable for the reader to attempt to conceive of the dimensions even of *one* of those *whole* circles, much less of the *whole universe*; which latter, however, if *created*, must be inferior to the Creator, and thus *finite*.

But, applying the same *general* laws to the creation of the solar, and the creation of the *universal*, system, it may be asked, "Why is it that either the unitary agglomeration represented by single planets, or the multiplied segregated division which we have supposed to be represented by nebulæ and stellar clusters, did not take place uniformly in *both* systems as the formation from the materials of the nebulous rings?" The answer, I apprehend, may be found in the different *conditions* of the rings in the two systems, as involved in their different magnitudes. In the great system of systems, the dis-

\* See Mitchell's "Planetary and Stellar World," p. 236-7.

tance of particles at any two extremes, must have been so great as to prevent them from having any *appreciable* attraction for each other. *Some* tendency to draw together and form a single permanent mass, indeed there must have been; but this tendency at the more distant points in the mass, must have been so small, and the activity of particular districts, especially after incipient nucleation, must have been so great, and so rapidly increasing, as to give rise to subsequent and numerous mundane forms and systems—the very thing proposed in our theory of segregation, and confirmed by appearances in the heavens.

But in the solar system, the distance from one extreme of the annular formation to the other, was comparatively small; and besides this, we may suppose that the varieties of matter in so small a mass, were less extreme, and that their affinities were more intimate, than in the universal mass previously spoken of. There was, therefore, not only a possibility, but a high degree of probability, that the materials of each of the rings of nebulous matter formed around our sun, would assume the form of *one* mass, which would subsequently move in an orbit whose plane and distance would be coincident with the previous ring.

But, admitting the nebular hypothesis, the multiplied segregative process actually does seem to have taken place in one instance even in our solar system, and given rise to *several* planetary bodies as the products of *one* ring. It is scarcely necessary to say that we refer to those strange bodies called the asteroids, which revolve at almost equal distances from the sun, between the orbits of Mars and Jupiter, and of which there is now known to be fifteen or sixteen in number. That these bodies must have originated from one primitive mass of planetary matter, there can be but little doubt, as such an

hypothesis is necessary to preserve the uniformity of the system, and to supply the vacuity that would otherwise have existed between the orbits of Mars and Jupiter.

If, therefore, instead of being without progeny, and revolving in solitude (which can only be owing to their diminutiveness), each asteroid were attended by a numerous family of children and grand-children (or satellites and sub-satellites), and revolved around one of their number, while performing their general circuit around a superior center, they would exactly illustrate, on a small scale, our idea of the segregated stellar clusters of the universe—each of which latter may be supposed to revolve, as one general body, like the asteroids, in an orbit generally coinciding as to plane, and distance from the great and common Center, with the plane and distance of the great ring of nebulous materials in which it had its parentage.

But it should be understood, that the *fifth* stage in the process of creation, considered merely as a process of *segregation*, is complete with the formation simply of separate angular masses and sub-masses, from the general materials of the nebulous rings.

The *sixth* process in the creative procedure, is a process of *solarization*, or one by which these previously segregated and indefinitely formed masses and their sub-divisions, become established *suns*. This process is accomplished by gravitations to, and emanations from, central points in the segregated masses, on principles essentially the same with those previously explained as applying to the formation of the first great central Body; but in this higher process, the operations may be supposed to be more refined and regular in proportion to the superior refinement of the elements and dynamic agents which are involved. These suns assume specific distances and orbits determined by the laws of equilibrium, and com-

mence their harmonious actions and reactions upon each other, developing a *sixth* law—the law of universal cosmical sympathy and reciprocation—corresponding to the nervous sympathy and reciprocal action existing between the different organs of the human body, the *little* universe.

The *seventh* and last law and process in this series of universal creations, is that by which planetary masses—bodies destined to become ultimately habitable—were evolved from the previous solar masses. Of course it is to be supposed that these bodies were produced from the solar masses by evolutions of nebulous rings, and by agglomeration of the materials of these, according to principles before explained. This development completes the fundamental structure of the material universe *as such*, and serves as the Basis and material Germ of all subsequent and more refined unfoldings.

The different stages through which the universal mass of materials have passed, from germinal to ultimate forms, may therefore be summarily represented in the following formula:

PRIMARY TRINITY.	SECONDARY TRINITY.
1. Heat-pervaded chaos.	4. Concentric nebulous rings.
2. Luminous attractive nucleus.	5. Segregated masses (from rings).
3. Electro-interactive spheroid.	6. Suns and clusters of suns.
ULTIMATE	
7. Habitable worlds.	

It is true that we can have no final and absolutely *sensuous* demonstration that such is the structure of the universe, because the telescope, with all its magic powers, has probably revealed, as it were, but an infinitesimal fragment of the great united System. Yet, considering that the telescope has explicitly revealed that the same laws of gravitation and revolutionary motion which apply to our own planetary worlds, apply

also to the most distant clusters of stars, thus binding all systems and firmaments together in one family relation, and referring them to a common parentage—considering, therefore, that our own solar system is of itself a *little* universe, exemplifying all the principles involved in the *great* universe, of which it is a child and antitype—and considering, as we may now well do, that the nebular hypothesis of creation is the correct one, and that laws are uniform throughout the whole realm of being—the preponderance of analogical evidence must, we think, be admitted to be in favor of the *general* truthfulness of the theory here propounded. For, in the first place (admitting the nebular hypothesis), our own sun, enthroned in the midst of our system, affords an ocular proof that matter in a primitively diffused state, and obeying the impulses breathed into it from the Divine spiritual source, *will* assume a central, gravitating, and rotating Nucleus; and this hints at the *great* Nucleus, which, on the same principles, seemingly must have *necessarily* been formed in the midst of the originally chaotic materials of the whole universe. Moreover, the rings of Saturn show the forms naturally first assumed by the attracted and emanated materials of a central body, which forms will be of varying distances from the central body, according to their specific degrees of density or levity. Some such forms seemingly must have *necessarily* been elaborated, not only by our own central sun, but by all other suns of sufficient magnitude and activity, and especially by the great Sun of all suns. But such annular forms, of course, can be preserved through subsequent condensation, only in case of the nicest equilibrium in their materials and motions, such as is characteristic of Saturn's rings. If there is any considerable inequality in either of these particulars the annular mass, in contracting, will inevitably resolve itself into the form of one

or more bodies, whose orbit of revolution will be such as was described by the position of the previous ring.

This consideration not only explains the origin of the planets satellites, and asteroids, of our own solar system, from the materials of previous nebulous rings, but suggests that analogous singular and multiple conglobations must, *seemingly of necessity*, have, in like manner, been formed in the sidereal spaces, from the materials of nebulous rings surrounding *their* respective centers, these all being subordinate to a *final* and *common* Center, as all created things proceed from a final and common Cause.

We may, therefore, say, that there are many avenues open toward the hypothesis we have propounded respecting the origin and structure of the universe, and many guide-boards (or facts and principles), pointing along these avenues, all in the same *direction*; while, if the mind attempts to travel in a different direction, and in quest of other conclusions, it not only finds no such guide-boards to direct it, and no such avenues open for its passage, but it is constantly obstructed by barriers of philosophical difficulty, and each of the steps of its progress is planted only on the miry and treacherous ground of *assumption*. While, therefore, the mind is ever held open to the reception of new light, and a willingness is preserved to abandon, any present errors for the sake of subsequently unfolded truths, it would seem that we might, without subjecting ourselves to any just charge of philosophical rashness, settle in the present conviction that the foregoing hypothesis, at least as to its *general* and *most essential* principles, can not vary much from the truth.

## CHAPTER VIII.

### THE SEVEN DYNAMIC AGENTS OR POTENTIAL MEDIA OF NATURE.

To facilitate a clear conception of the relations of the Deity to, and his mode of acting upon, the universe, as well for other important uses, we will now endeavor to attain to some further conceptions of the *dynamic agents* immediately connected with the seven general laws, and their corresponding seven-fold developments, considered in the foregoing chapter.

It was before intimated, on grounds which appear even to transcend mere probability, that the agents immediately concerned in generating in the universal chaotic mass, the first three phenomena of Expansion, Contraction, and Circulation, were Heat, Light, and Electricity. By the agency of these three principles, we have supposed that the mass was successively developed from a chaotic, to a nucleated, and spheroidal form. Another and corresponding trinity of agents was hinted at, which will now form the subject of special consideration and illustration.

In unfolding the doctrine of the seven-fold series, it was shown that the fourth, fifth, and sixth members of such a series, composing a *Secondary Trinity*, bear a certain correspondence, respectively, to the first, second, and third members, which compose a *Primary Trinity*. Thus, as the *Primary Trinity* of conditions in the universal material mass,

consisted of the chaotic, the nucleated, and the spheroidal, so the Secondary Trinity (comprising nebulous rings, segregated and contracting fragments, and developed solar forms) may be characterized as secondary chaos, secondary nucleation, and secondary spheroidation. This being so, and the dynamic elements of the first Trinity being Heat, Light, and Electricity (each probably in a gross degree of development), a carrying out of identical principles will lead to the supposition that the dynamic agents *peculiar* to the *Secondary* Trinity, are such as would *correspond* to Heat, Light, and Electricity, in a *secondary* degree of development, so to speak, without, however, supposing that they are absolutely *identical* with Heat, Light, and Electricity, as these terms would ordinarily be understood. This, however, is a mere deduction from principles and correspondences; let us now see if there are any substantial *facts* to support it.

Such facts are involved in a series of interesting and most important discoveries, made by BARON VON REICHENBACH, a few years ago, and of which we will now speak briefly. The course of experiments which led this ingenious philosopher to the discoveries in question, was commenced by testing the properties of magnets. By the assistance of a number of delicately organized persons, mainly cataleptic patients, in whom the senses, especially *sight* and *feeling*, were in an uncommon degree of exaltation, he ascertained that from either pole of an open magnet, there was constantly given forth a *luminous, flame-like appearance*, visible in a dark room, but only to such as possessed this uncommon acuteness of vision. The flames sent forth from the poles of a large horse-shoe magnet, capable of supporting ninety pounds, were described as about eight inches in mean length, mingled with iridescent colors, and gently flickering and waving, shortening and

elongating, and yielding when blown upon, and when the hand or any other solid body was passed through them. The whole appearance was described as being exceedingly beautiful.

This experiment was repeated with many different observers, from all of whom the same general description was obtained—the accuracy of which was further tested by varying the experiments without the knowledge of the observers, and noting the corresponding and uniform variations of the appearances described.

But, in order to obtain still further assurance that those luminous appearances described by others were real, though invisible to himself, the experimenter, by the aid of another scientific gentleman, instituted the following additional test: A very sensitive daguerreotype plate was prepared and placed opposite to a large open magnet, in a closed box, enveloped in thick bed-clothes, so that not a particle of ordinary light could enter it. After the lapse of sixty-four hours, the plate, when exposed to mercurial vapor, was found to be distinctly affected, as by light. Another plate had been, at the same time, similarly prepared, and inclosed in a dark box, *without* a magnet, and after a similar length of time this was found to be entirely unaffected.

The light was also subjected to the test of the convex lens, and was found to be converged and thrown upon the wall in the same way as any other light, *but at a considerably greater focal distance*, which fact of itself proves that the luminous substance was different from ordinary light.

By tests similar to those which were employed with the magnet, it was subsequently ascertained, with equal certainty, that similar lights were also emitted from *crystals*. The flames issuing from the points of large crystals were described by

those who could see them, as being somewhat in the shape of a tulip, and singularly beautiful. One young lady used, when ill, to lie awake nights enjoying the sight of the beautiful flame emitted from a large rock crystal which had been left in her room. But bodies confusedly crystalline exhibited but little of this phenomenon, and bodies entirely amorphous exhibited none, but nevertheless gave forth, in common with crystals, magnets, and other things, a still more subtle influence, which will hereafter be described.

Our experimenter subsequently introduced other tests with the view of ascertaining to what extent this newly-discovered force prevailed in nature. He extended the end of a wire through the keyhole of the door of a perfectly darkened room, in which he placed a person whose senses were sufficiently acute to detect any luminous or other phenomena which might present itself as the result of any experiment. The other end of the wire he attached to a metallic plate, which, without letting the observer placed in the room know what he was doing, he would push out into the rays of the sun, or of the moon, or of the planets, or fixed stars; or would place an animal, a plant, or his own hands, upon its surface; or would subject it to chemical action, or the action of heat, cold, or electricity. He found the results of all these experiments nearly uniform in one particular, viz., in respect to the emission of a narrow tuft of light several inches in length, from the end of the wire, which would begin to be visible soon after the agent experimented upon was brought to bear upon the plate. Indeed, whatever possessed in itself the least molecular force or action, was found to be capable of evolving a greater or less degree of this luminosity.

Other processes gave an *analysis* of these lights, and showed remarkable relations in their constituents, to different points

in the terrestrial and celestial spheres. It was found, for example, that the flames from the poles of a large electro-magnet (which were much larger and brighter than those emitted from the permanent steel magnet) would, after the galvanic circuit was completed, slowly and gradually resolve themselves into distinct stratifications of color, presenting, in fact, the seven-fold luminosity of the rainbow, with the red below and the violet above. These colors, again, were found to vary with the varying distances at which they were viewed—the whole of the appearances, when taken together, showing that each one of the differently colored radiations terminated, for the most part, at a certain distance from the common center of luminosity. This distance, though Reichenbach did not remark it, was probably nearly the same all around; the differently colored rays thus forming a system of concentric spheres of light.

Guarding against errors which might arise from variations in these colors as resulting from the varying distances at which they were viewed, our philosopher was now prepared for another interesting step. Having previously found that a magnetic bar, with poles in the direction of the dip, always emitted different colors from those it gave in the meridian, he proceeded to ascertain what effect other positions of the pole would have upon the character of the luminosity. For this purpose he caused a magnetic bar to revolve lengthwise, first in a vertical circle in the direction of the magnetic meridian, then in a vertical circle in a direction east and west, and lastly, in a horizontal circle. He found that in each case different colors were evolved according as the magnet was pointed in different directions, *and that as it passed, in each case, through a complete circle, it evolved, in regular succession, all the colors of the rainbow!*

By subsequent electro-magnetic experiments with an artificial globe called the *terrelle*, Reichenbach succeeded in precisely reproducing the appearances of the *aurora borealis*, and may be considered as having probably afforded a complete solution of that interesting phenomenon.

We find in these remarkable facts a complete verification of our previous hypothesis, so far as it relates to an essence which may be called *secondary light*. While this light is, in some particulars, similar to ordinary light, it differs from it totally in others, as the foregoing description renders obvious; and it therefore may be judged to belong to a somewhat *different degree* of natural developments. Considering this, therefore, as one of the members of our supposed Secondary Trinity of imponderables, we shall now see that our hypothesis, so far as it relates to the other two members, is not without the support of similar facts.

When a horseshoe magnet was closed by an armature, all appearances of a luminous flame would immediately cease, but would be instantly reproduced on the removal of the armature. This establishes the probability that the same force which in the open magnet generates the luminosity, is, by the application of the armature, simply rendered *latent*, so far as its flame-generating power is concerned, but that it nevertheless still exists in the closed magnet, and acts as an *internal principle*, or as a principle corresponding to fire or heat. This view is further confirmed by the fact that one of Reichenbach's subjects saw even closed magnets, and, indeed, metals of all kinds, luminous in the dark, as though they had been heated to incandescence—without, however, giving forth any flame-like scintillations. Such, then, are the evidences of a *Secondary Heat*.

But still more conclusive indications were obtained of an

*electroid*, or *electricity-like* agent, as connected with the identical sources of these other phenomena. It was found that magnets, crystals, or whatever afforded the phenomena of this attenuated light, together with many things which did not, also emitted an influence or *aura* which was capable of acting decidedly upon the nerves of a certain proportion of persons. This *aura* was described as warm or cold, according as it was received from either pole of the magnet or crystal, or according to the positive or negative quality of any other source from which it was obtained. It was found capable of acting at a distance, and of being transmitted through conducting media, and of sometimes acting so powerfully upon the sensitive as to produce catalepsy and dangerous spasms. Thus, at one time, during the illness of one of Reichenbach's employées, he held a large magnet, capable of supporting ninety pounds, at the distance of six paces from her feet, as she lay on her bed, with her physician by her side. While the armature was attached to the magnet she felt no peculiar sensation, but the instant it was removed she fell into tetanic spasms and complete unconsciousness from its action. The armature being again attached, the girl slowly recovered her senses, and her physician advised that the experiment should not be repeated. Another lady, subject to attacks of catalepsy, could instantly detect the approach of an open magnet, though the latter was brought, without her knowledge of the intention, near the head of her bed, on the opposite side of the wall.

Magnets, crystals, etc., were also found to powerfully *attract the hands* of cataleptic patients, even during the unconsciousness of their fits.

It was also ascertained that amorphous bodies, in common with others, sent forth this ethereal influence, though, as before

shown, they gave forth *no light*. And here it was more fully ascertained, *that the ethereal emanations from different substances, were specifically different* as to their effects upon the human nerve, thus affording indications of the distinctive characters of the emanating sources. One peculiarity of amorphous (that is to say, uncrystallized and unorganized) bodies was, that their exhalations gave a nauseous, accompanied by either a cold or warm, and sometimes also a prickly, sensation, to persons whose nerves were in a sufficiently sensitive state to test them; and some bodies imparted these sensations in a greater degree than others. In the investigation of this point, Reichenbach took the trouble to try more than six hundred bodies with reference to their nauseating force. The young lady through whose aid the tests were made, could easily give to every substance its proper place in the scale of force, and this she could repeat, without failure, after intervals of several days. "It soon appeared," says our philosopher, "that these bodies arranged themselves according to their electro-chemical value, and, indeed, in suchwise that the highly electric stood at the top, and the indifferently so at the bottom of the scale, without regard to their polar opposition."

When the same substances were tried on this same young lady while in a state of catalepsy, "the results were the same in kind, but in degree much stronger. The substances at the top of the scale, laid in her hand, caused violent spasms, whereby they were thrown at a distance, and her hand then, as usual in catalepsy, retained the new position. . . . It was soon observed that many substances began to act before they touched the hand, and it was enough to place them near it."

These experiments were repeated, not only with other nervous patients, but with several gentlemen in a state of per-

fect health, with results differing from the above no more than what might easily be accounted for by the different degrees of susceptibility in the experimenters. The different substances tried are enumerated by Reichenbach according to their specific effects, but it will here be sufficient to say that *sulphur* was found to be the general representative of those which, without contact, gave the sensation of *cold*, and *gold* of those which gave warmth; and almost every one whose hand was made to pass over small plates, coated respectively with these substances, felt, in some degree, these corresponding sensations, and some felt them quite vividly.

Without any knowledge of Reichenbach's investigations, Dr. J. R. Buchanan, of Cincinnati, was engaged, about the same time, in a similar course of experiments with amorphous bodies, and developed results similar in character, but in some respects even still more decisive. Without here entering into the details of his experiments or inquiries, it will be sufficient to state that they resulted in establishing the fact, that *medicines*, holden in the hand of the patient, even when wrapped up in paper and concealed from view so as to guard against the effects of imagination, will, in a large proportion of cases, have all the effects that the same medicines will have, taken internally. Out of about one hundred and thirty medical students belonging to a class which attended the lectures of Dr. Buchanan, forty-three declared themselves fully affected by this experiment, to which they had been subjected during the delivery of one lecture.\*

Similar phenomena have been observed as the results of similar experiments in other instances, but we have no room for further details on this branch of our subject. In all such

\* See "Buchanan's Journal of Man" for February, 1849, Art. 1.

cases the action of the medicines is doubtless due to an absorption of their subtle and *characteristic* emanations, through the pores of the skin, whence they are diffused through the nervous medium of the system, acting upon the vital forces which control all the functions of the physical organism.

By experiments which placed deception out of the question, it was found that these ethereal influences of different substances, could be conducted through wires to a distance of from three to one hundred and thirty-two feet, so as to be distinctly perceived by the more sensitive of Reichenbach's experimenters.

But a fact still more important in its bearings was, that different bodies placed in contact with, or in close proximity to, each other, would mutually impart their influences to each other, so as to modify or totally change the effects which they would otherwise produce upon sensitive patients. In other words, and to use a figure of speech that will be perfectly understood, they would mutually *magnetize*, or *mesmerize*, each other—would enter into a sort of *rapport* or reciprocal sympathy, by an interdiffusion of their spheres or ethereal emanations. Thus it was found that sulphur, which of itself would impart a cold and prickling sensation to impressible persons, even at a distance of several feet, and without a conducting wire, would, by contact or close proximity to other substances, empower them, for a time, to give forth a similar influence, even though their own proper influences might be of an opposite, though less powerful, character; and so of other substances, and their modifying influences upon others.\*

The general reliability of the foregoing and other alleged

\* For further details of these interesting experiments and their results, the reader is referred to Reichenbach's "Physico-Physiological Researches on the Dynamics of Magnetism," etc., New York. J. S. Redfield.

results as obtained by Reichenbach, will not be disputed by those who know the character of the experimenter, or who, from a careful perusal of his report, have noted his exceedingly cautious mode of proceeding. Reichenbach is known throughout Europe as a chemist second only to Liebig himself, and, speaking of this same course of investigation, Professor Gregory declares that "it was not possible for any experiments or discoveries to be presented to the scientific world by one more entitled to confidence in every point of view." Besides this, his more important experiments have been repeated by others, and their results verified, in many instances, both in this country and in Europe.

Availing himself of the plasticity of the German language, Reichenbach designates the new force (rather *forces*) which he discovered, by the German suffix "*od*," and indicates the sources whence this force is obtained, by their names prefixed to that syllable, as "*magnetod*," "*crystallo*," "*thermo*," "*photo*," etc., as respectively indicating a connection of the force with magnets, crystals, heat, light, etc. In the English language, therefore, this new imponderable has been rather clumsily designated as the "*odic force*," or "*odylic force*."

But the various phenomena exhibited by this so-called force, show that it is not simple but complex, or rather that it involves a number of distinct forces. Its rudimental existence in the closed magnet, as also in various unmagnetic bodies, was not only intimated by the luminous and incandescent appearance of the bodies of metals, before spoken of, but is also implied as an antecedent of the luminous, flame-like appearance which it engenders at a further stage of development—just as the existence of common caloric is implied as an antecedent of common flame. The light itself is a *second* development; and the ethereal *aura* which, without any luminous

phenomena, acts upon the human nerve, is a *third*. The three, therefore, may be variously characterized as “odic heat,” “odic light,” and “odic electricity,” or “odic ether;” and here we have our previously conjectured Secondary Trinity of dynamic agents, corresponding to the Primary Trinity, which consists of Heat, Light, and Electricity, as these terms are ordinarily understood.

In the same way in which the *Primary* Trinity of dynamic agents is concerned in the Primary Trinity of each system of physical developments, the *Secondary* and *corresponding* Trinity (in connection with the Primary, which is *still* and *always* in force) is concerned in each *secondary* and *corresponding* Trinity of developments, with their peculiarities.\*

Thus the principle which we have called “Odic Heat,” may be considered as the internal love-principle by which particles associate in organic forms, and therefore is the *fundamental* dynamic principle connected with the fourth law—the law of *Aggregation* or *Organization*, whether relating to the universe as a whole, or to any of its definitely constituted parts.

The “odic light” appears to be expressive of the ethereally aspirative operations of the organic structure from which it proceeds. It was before mentioned that this light consisted of the seven different colors of the iris, which seemed to surround the center of luminosity as so many concentric spheres of light; and that when Reichenbach caused a magnetic bar to revolve lengthwise on horizontal and vertical planes, the light exhibited successively all the different colors of the rainbow, as the magnet was pointed in the different directions in respect to the earth and heavens, which lay in the plane of the

\* It is not claimed that these dynamic principles apply *identically* to each and every sever-fold system of developments, as to some systems they apply only by their natural representatives, analogues, or correspondents

circle. I can not but regard these results as exceedingly interesting and important, as showing the relative degrees and states of *polarity* of particular points and directions of the earth's surface, and of the surrounding and celestial spaces—thus, as suggesting the different *qualities* or *states* of the materials of which the earth and all correlative creations are composed—thus, as suggesting the correlative *affinities* and *forces* by which these materials became associated in their present structural form—and finally, as suggesting something of the perpetually repeated round of changing influences and ethereal forces through which (in analogy to the revolving magnet) the earth and all celestial bodies pass in performing their rotary and orbital revolutions. If there is any validity in these suggestions, then these degrees of polarity, states and affinities of matter, changing ethereal forces, etc., all exemplify the *seven-fold series* as corresponding to the seven colors of the iris, which, in the experiment referred to, were successively given forth by the revolving magnet. And, applying these remarks (as analogy would justify us in doing) to *all* mundane organizations—to the solar system, the sidereal systems, and to the whole universe as one Body—as well as to the earth, we have in the “*odic light*,” a universal dynamic correlative of the *fifth* law—the law of *segregation*, or the law by which unity is divided into parts of different and connected gradations.

Concerning the *third* member of this trinity of agents—the “*odic*,” electroïd, or ethereal emanation which was found to produce such marked and singular effects on the sensitive human nerve, the following remarks may be submitted :

1. All things subjected to careful experiment, whether in the animal, vegetable, or mineral Kingdoms, or in the celestial spaces, were found to send forth this subtile eman-

ation, which in each case may be called the *sphere*, or ethereal atmosphere, of the substance or form from which it proceeds. It may therefore be presumed, on analogical grounds, that things also not available for experiment, and that, indeed, absolutely *all* things, from atoms to worlds and systems, and even the whole universe, considered as a Unit, are in like manner characterized by a surrounding and pervading ethereal sphere.\*

2. The emanating spheres of smaller bodies associated with larger ones, must necessarily be *included in* the emanating spheres of the larger bodies on which they rest or depend. The sphere of a single particle of mineral matter, for example, is comprehended and encircled in the general sphere of the whole crystal of which it forms a part; and the same remark applies to particles and organisms in other kingdoms in nature. The spheres of all minerals, vegetables, animals, etc., separately and collectively, are involved and comprehended in the general sphere of the earth; the sphere of the earth, together with the spheres of all other planets, with the satellites and comets, is involved and comprehended in the general sphere of the whole solar system; that sphere is comprehended in the general sphere of the great stellar vortex in which, accompanied by myriads of like systems, it moves; and that sphere is comprehended in the general sphere of the whole Universe; and that sphere is, in like manner, enveloped in, and pervaded by, the great sphere of the infinite Divine Being, which is the Essence of all essences, the Force of all forces, and the Vitalizer of all vitalities! Here, then, is a

\* This doctrine of "spheres" was taught by Swedenborg, and by others since his day. It may almost be said that it has a sufficient foundation in the developed intuitions of the human mind, and it would stand even independent of Reichenbach's most conclusive scientific verifications.

progressive gradation from the smallest to the greatest, from the infinitesimal to the Infinite, from the atom of matter to the incomprehensible fullness of a Divine Spiritual Being.

3. The spheres of all bodies in the universe, from smallest to greatest, while they are *generically similar*, are *specifically different*, and the sphere of each body corresponds to that body's internal character. This is a conclusion which, as regarded merely by the reasoning powers, is necessitated, by the obvious differences in the intrinsic nature of things, and it is confirmed by the differences in the effects produced by the ethereal emanations of medicines and other substances, and even by the heavenly bodies, and by different districts of the celestial hemisphere which were subjected to tests.

4. As it was proved that the spheres of sulphur, gold, medicines, etc., acted and reacted upon, and *mutually modified*, each other, and this, too, when the solid bodies were a distance apart; so, carrying out this principle, it may be presumed that the spheres of *all* bodies, terrestrial and celestial, from smallest to greatest, from atoms to worlds, stellar systems, and the whole universe, in like manner, *act and react upon, and modify each other, according to their relative degrees of magnitude and power*. And this mutual interdiffusion of spheres, and their harmonious and reciprocal action and reaction upon each other, while each particular form and system preserves its own identity, constitute an important part of the *physiological and functional operations of the great Anatomical Structure of Creation*, and which, as before intimated, corresponds, in principle, to a single human body. The great ethereal Sphere of *all* spheres may be considered as the *sympathetic nerve-essence* of this Anatomical Structure, viewed as a whole, while the sphere of each sun, world, and atom, may be considered as its *own particular nerve-essence*; and it

is through these nerve-essences that each part of the whole Body sympathises with all other parts, and that the equilibrium and harmonious functional operations of the whole system are preserved.

This subtile and variously qualified electroid or magnetoid element, therefore, being the *sixth* in the seven-fold series of dynamic agents, is intimately allied to the sixth general law, which we have seen is a law of harmonial and sympathetic reciprocation.

It is true that the discoverer of these previously unknown subtile agencies did not exhibit, and perhaps did not, to any extent, perceive, their *cosmological* bearings, especially as these are attempted to be set forth in the foregoing remarks. His main object appears to have been to develop *facts*, leaving the more comprehensive *conclusions* to which these might naturally conduce, to be unfolded by subsequent investigations, and by others as well as by himself; and as his facts, by their publication, and their verification by the parallel experiments of others, have become the property of the world, any one may elaborate and synthesize them who has the inclination and mental qualifications to do so.

In respect to this "odic," or magnetoid element, which pervades, and emanates from, greatest and smallest things, the following additional and important remarks may be submitted: As this influence, proceeding from various bodies, near and remote, was found to have such remarkable effects upon the sensitive human nerve, it may be considered as being closely allied, in its general nature, to the nervous influence pervading the human body, and emanating from *it* as an "odic" sphere. Indeed, Reichenbach actually proved its identity, in the general sense, with the medium through which one human being produces those effects upon another, com-

monly known as "magnetic" or "mesmeric;" and the world is indebted to that philosopher for physical demonstrations in this department, which place the fundamental doctrines of Animal Magnetism beyond all possible doubt.

Now, operations called "*magnetic*," as performed by one human being upon another, are known to depend greatly, for their character and efficiency, upon the exercise of the *will*. If, therefore, the medium through which such magnetic operations are performed, is generically the same with the "odic" spheres given forth by all bodies in nature, do we not find in this "odic" element *the general connecting link between mind and matter?* If, upon the basis of this certainly plausible idea, we should suggest that this everywhere present "odic" element, as associated with the different bodies in nature, and with nature as a Whole, may hereafter prove to be a medium through which mind can, in certain conditions, and to a certain extent, act upon and move outer tangible matter, without the contact of the physical organs, the suggestion would doubtless be met with general incredulity, especially by those who are not familiar with certain strange phenomena of our day. It could not be esteemed more incredible, however, than would have been an assertion made fifty years ago, that by a peculiar mechanical contrivance, a certain subtile agent in nature might be efficiently employed in the accurate and instantaneous transmission of thought to the distance of a thousand miles! But not to press these thoughts for the present, if our foregoing generalizations are correct, then we hazard little in saying, that as the all-pervading "odic" sphere of the universe, as a whole, in its ultimate degree, connects with the sphere of the Deity, *so the Deity, through this medium, acts upon the universe, in the same way as any two juxtaposed substances or forms in nature act upon each other*

through their "odid" spheres, and as was illustrated by experiments before related. And as the Deity, moreover, is a *personal* and *intelligent* Being, he may through this medium act, not only *spontaneously*, but *volitionally* and *directly*, upon the universe, or upon either of its corresponding sub-creations, and control it to any extent which may comport with the integrity of his general plan.

But we come now to another point: As each previous stage of creation, with its peculiar law of developments, from the first to the sixth, was thus accompanied with, or related to, a corresponding dynamic agent, the same fact may be supposed to hold with reference to the *seventh* stage, which, in the cosmical creation, as before shown, consisted in the development of *habitable worlds*. And as this is the *final* development of the seven-fold cosmical series—and brings the physical structure of the universe *as such*, to a completeness—so we may suppose that the *dynamic principle* related to this development, is also the ultimate and completion of *its* series. And being the last of a series in which there is observed a progressive refinement from the first, at least to the sixth, it may be supposed to unite in itself the principles of all the others in a still superior degree of refinement.

But we have seen that the series of universal cosmical developments included in what we have called the great Kingdom of Materiality, must have been based upon, and have sprung from, an antecedent, unoriginated, and *infinite* Kingdom of Spirituality, which we call God. If this same Principle, like the vital elements of the germ of a tree, lies at the basis, and is reproduced at the completion, of the unfolding, then this seventh dynamic principle, concerning which we are now inquiring, can be nothing less than a *degree of the seven-fold elements of the originally generative Divine Spirit, now em-*

*bodica in cosmical investiture.* Viewed in this light, this seventh dynamic principle may be called *Soul* or *Vitality*—the Soul or vital Principle of the cosmical universe, or the Principle by which it, as a universe, *lives* and performs all its normal movements!

Let me not, however, be understood as intimating that the *all* of God was thus embodied in the universal cosmical structure. Neither the universe of material worlds, nor of heavens, nor the heaven of heavens, can contain HIM who is absolutely INFINITE, and it must have been, *comparatively* speaking, an exceedingly small ray from his interior and ineffable effulgence that sufficed to give birth to, and move and regulate, the material structure which we have been contemplating, however sublime and inconceivable to human intellect this may be. Nor was the Divine embodiment of which we speak, necessarily an embodiment which, in its immediate exterior manifestation, would take the form of what is generally understood by *intelligence*; though intelligence, as an attribute of a much higher and more interior degree of the Divine Spiritual Constitution, was the projecting, planning, and (acting through the ultimately refined “*odica*” spheres, or *quasi* nerve-essences of his creations, before spoken of) is the constantly supervising and all regulating Principle. The Divine qualities as intelligence were subsequently and, at a much higher degree of creative progression, finitely expressed in the *human microcosm*, which is expressly declared to be an “image of God.”

It is, however, here submitted as a truth which, it is believed, will become more evident in proportion as its foundation and bearings are better understood—that the *identical principles* of what we know as *intelligence*, are embodied (though not as intelligence) in each kingdom or system of creation *below* man, and finally in the universal kingdom of

cosmical forms ; these various descending embodiments bearing to each other the relations of descending octaves. Thus what is called *intelligence* in man, is called *instinct* in animals. But *plants* also, have a kind of instinct ; and so in lower degrees, have minerals, worlds—the whole universal System of worlds—each embodying and representing a lower degree of what may receive the general designation of Love, Wisdom, and Volition ; or Expansion, Attraction, and Circulation ; the lowest triune degree of which is embraced in the functions of Heat, Light, and Electricity.

The seventh dynamic principle of the universe, therefore, which pervades and governs all other principles, is only an embodiment of that degree or octave of the principles of the Divine soul which is in immediate relation with, and serves to control the functional operations of, the universal cosmical Body ; while the *higher* degrees of the seven-fold Divine harmonies, flowing downward from the infinite sources of Divinity, are left to be embodied and represented in subsequent and more refined creations, or remain at infinite removes above the sphere of all terrestrial and celestial forms.

Of the doctrine intended to be conveyed in these remarks, a more distinct and enlarged understanding will be obtained as we proceed.

But, presuming that the reader already sufficiently comprehends the fundamental principles herein set forth, he is desired to bear constantly in mind, that the dynamic principles of the cosmical creation, were not *developed by* the creation itself, but *developed it* ; and the same may be said of the vitalizing and moving elements of *all* degrees of material unfolding. The dynamic principles (constituting, indeed, what may, in the aggregate, be called the general Soul) are thus the immediate Cause of the outer development (or Body), which is the Effect.

And here it may be remarked, that if there is *any* relation between Cause and Effect, it must not only be a relation of *generals*, but of *particulars*; and thus the Cause must be a precise archetype of which the Effect is an antitype or embodied representative; and hence the two must, throughout, precisely correspond to each other. Every *degree* of creation, therefore, may be considered as a precise outer expression of the corresponding *degree* of Divine Love, Wisdom, and Energy which vitalizes and governs it, and in which it was previously contained as an archetype.

Moreover, these interior Divine dynamic principles, together with their prescribed *modes* of action, constitute the operative *laws* of nature. According to this view, while there is a *law* for every class of natural and even spiritual phenomena, and all things may be explained without a resort to *contra-natural* or *contra-legal* agencies, laws, on the other hand, are not those lifeless, unintellectual fatalities which they are represented to be in prevalent philosophies of the day, but they are the express modes of perpetual *Divine volition*. In looking, therefore, upon this universe, with all it contains, as *law-governed*, we may, at the same time, look upon it as *God-governed*. But on this point, more in its proper place.

If this view is correct, then there is, in reality, no necessary antagonism between materiality and spirituality, nature and heaven, reason and revelation, science and theology, but each may be regarded, when correctly understood, as the exponent of the other. Quite distinct, however, is this view from that gross speculation which makes of God nothing more than the ultimately sublimated and self-moving essences of the natural universe—a kind of universal hyper-galvanic battery which, by its perpetual and self-generating action, produces solar and planetary revolution, terrestrial changes, and those movements

in the refined essences of the human brain which constitute *Thoughts*. In our philosophy, God is God, and nature is nature—the two being eternally distinct, though intimately connected and co-related with each other.

## CHAPTER IX.

### DEFECTS OF PREVAILING COSMOLOGICAL THEORIES.

IF the foregoing theory of the origin, structure, dynamic agents, and laws, of the universe, has any foundation in truth, it can scarcely fail to throw important light upon some still ulterior questions relating to the prescribed distances, motions, reciprocal attractions, etc., of planetary and sidereal creations. It may even show that some time-honored theories upon these subjects, however sanctioned by the authority of great names, are, in certain particulars, radically defective; and this it will do, if at all, by transcending them in the ease, naturalness, and completeness with which it accounts for certain existing phenomena.

It was supposed by Sir Isaac Newton, that all rotatory and orbital motion of the heavenly bodies, originated from a *primary and external impulse* received from the hand of the Creator, as they were launched into space. To this was added the philosophical axiom, that any body put in motion *in a vacuum*, will continue forever to move in a straight line, unless deflected from its course by some other force. This deflecting force, as applied to the motions of the planets, Newton found in the law of *gravitation*, which was by him proved to apply to all planetary bodies. By the precisely counterbalancing action of these two forces, called the centrifugal and centripetal forces, the motions of the planets were supposed to be regulated in circular or elliptical orbits round the sun, the specific

distances of these being greater or less according to the nearness or remoteness of the point where these two forces were exactly balanced against each other.

But Newton soon found this theory, seemingly perfect in other respects, encumbered with difficulties in respect to the *stability* of the system. He found that the different planets were not only attracted by the sun, but mutually attracted by each other. These different attractions, varying in intensity in the inverse ratio of the squares of distances, according to a law discovered by Kepler, were accompanied by *perturbations*, producing irregularities in orbital motions which were subject to secular increase. The system, thus, left to its own internal provisions, seemed to prophesy its own progressive derangement, and its ultimate entire disorganization; and Newton felt impelled to call upon God to avert such a catastrophe, by supplying a force from *without*, which he supposed did not exist *within*, the system.

The calculations of subsequent mathematicians, however, served, in a good degree, to dispel these gloomy forebodings, and led to the conclusion that the irregularities and apparent incipient derangements in the motions of the system, would finally reach their maximum, after which there would be a gradual return to the condition of primeval equilibrium; that thence there would be a progressive tendency to irregularity in the *opposite* direction, to be succeeded by another reaction; and that the perpetual vibrations of these irregularities, like the oscillations of a mighty pendulum, would serve to mark the hours and moments of eternity!

This conception of the laws, internal arrangements, and movements, of the system, together with the apparent mathematical evidences which have been arrayed in its support, can not otherwise than be regarded as one of the greatest

triumphs of human genius. Yet, even while overwhelmed with a sense of its sublimity, one can not well suppress a sense of sadness as he contemplates its cold, mechanical lifelessness—I had almost said Godlessness! Contemplated in this light, the universe appears somewhat analogous to an ingeniously constructed machine, which is wound up, and left to go of itself, while its maker withholds a further exercise of power from it, and forever withdraws all immediate personal care over it, as being unnecessary. With this philosophy impressed upon our minds, we look up into the heavens, and, though we behold incessant motion and activity in every direction, we see no necessary evidence of immanent life or spirit—nothing with which our souls can sympathize as the present pervading *Animus* and constantly impelling Cause of the phenomena we behold; and it is only by an almost painful stretch of the powers of inductive reasoning, that we can attain to any substantial conviction of a spiritual or voluntative Cause, as having been connected with the system even at its *origin!*

It may be added, that thousands of persons, on arriving at a full comprehension and conviction of the truth of the Newtonian theory of a merely mechanical universe, and of *vacuity* in the interplanetary and interstellar spaces, have anxiously inquired, “Where and what, then, is that *spiritual world* to which our interior natures aspire, and for which Revelation encourages us to hope?” and nature, viewed in this aspect, has not only refused to respond in language which appeals to the conceptive and reasoning powers, but has interposed a cloud of darkness and doubt between the inquirer and the subject which he seeks to comprehend! In its efforts to satisfy the irrepressible yearnings of the spirit within, Fancy has erected a formless, unextended, unsubstantial—even unaerial—figment, that bears no relation to space or the material uni-

verse, or to any of the rational faculties of the soul; and in this mankind have been told to have *faith*, as the place or state of future human destination! But a *rational* faith in such an utter inconceivability is out of the question, and an *extra-rational* and mere dogmatic faith, in such an idea, can not generally, if ever, be kept free from superstition, and hence, from a greater or less degree of mental degradation and slavery. Hence, in case of full adoption of the Newtonian system of cosmogony, a determination to follow only the convictions of *reason* will necessarily tend to skepticism with reference to *spiritual*, and to some extent even with reference to *Divine* things; and there is no latent force in the theory which, by any development, can ever correct this mental aberration. In the spirit and tendency of this merely *mechanical* mode of philosophizing upon the universe, may, I apprehend, be found the main cause of the growing materialism and skepticism of these modern days, especially among minds called *scientific*.

Subjected to the test of rationality, however, the Newtonian system, in at least one of its features, seems to be almost as bad off as the only spiritual and theological theories that can be rationally associated with it. It predicates mutual gravitation of any two distant bodies, while it fails to recognize, if it does not, by implication, entirely preclude the idea of, any intervening gravitating agent. But that any two bodies can in any way act upon each other, either without immediate contact, or the intervention of some substantial medium by which they can touch each other, is utterly inconceivable, and can no more be supposed than any effect can be supposed to be disconnected with an adequate cause. We do not, however, charge the theory with *absolutely* and *necessarily* precluding such a medium; but by manifesting, at its very starting point,

such a strong inclination to the idea of absolute *vacuity* in the interplanetary spaces, it not only fails to provide such a medium, but, in effect, discountenances the idea that such exists. In the theory which we have maintained in the preceding pages, however, the medium in question is abundantly provided.

Moreover, the system as conceived by Newton can not, after all, be contemplated without some degree of apprehension in regard to its *safety*. For, notwithstanding the figurings of subsequent mathematicians respecting the reaction which tends to restore lost equilibrium, if we do away with the immediate immanence of Divine Vitality—in other words, with the immediate presence and agency of that *degree* of the Divine Essence and Power of which the universe forms a suitable habitation, and which is necessary to the life and functional operations of the latter as of one Body—then there are many chances against the existence of an *absolute equilibrium* in the different parts and forces of the great Whole: and if there is ever a disturbance of the equilibrium to an extent which can not be entirely restored by a counter oscillation, even though this be only the fraction of the weight of a planet, or even the amount of a single pound, the disturbance will progressively aggravate, and a universal catastrophe will be the final and inevitable result!

If, therefore, the stability of the universe depends merely upon the nice counterpoise of the centrifugal and centripetal forces, as independent of this constant Divine Force, and of any *elastic, active, and reactive* medium to keep the various celestial bodies within prescribed boundaries, then human reason can not withhold the suspicion of *danger* as it contemplates the stupendous Machine, or suppress the apprehension that it may one day fly to pieces, and involve us all in the

common wreck! This apprehension greatly increases, when it is considered that Newton's hypothesis of absolute vacuity in the spaces through which the celestial bodies move—an hypothesis upon which, according to him, the equilibrium between the centrifugal and centripetal forces necessarily depends—has proved unfounded, and that the phenomena of retardation of comets in their orbits, has proved that the interplanetary spaces are pervaded by an attenuated fluid or ether, capable of exerting some resistance to their progress.

It is here submitted, with all due deference to the superior intelligence of many who have never entertained a doubt of the entire truthfulness of Newton's theory, that that theory, at least without essential modifications, would probably never have been propounded by Newton, or adopted by others, had the theory of the nebular origin of the universe, with its accompanying evidences, and natural corollaries, been previously subjected to familiar contemplation.

We now proceed to briefly unfold a theory respecting the foregoing subjects, which, whatever may be its imperfections, seems to the writer, at least, much less encumbered with difficulties than the merely mechanical theory of Newton, while it is certainly more compatible with the idea of an immediate and universal Divine superintendence.

## CHAPTER X.

### FOUNDATIONS OF STABILITY AND GENERAL ECONOMY OF THE COSMICAL STRUCTURE.

As a preliminary step toward a due comprehension and appreciation of the theory now to be offered respecting the internal forces, movements, grounds of stability, and general economy of the universe, the reader is requested to bear distinctly in mind that *principles* operate indifferently upon a large and a small scale—that the magnitudes and distances of the objects to which they apply, are absolutely of no consequence as affecting the essential nature of their operations.

Now, in the light of this truism, let us suppose some simple vegetable form—say an apple—to be placed under a microscope so exceedingly powerful as to magnify it to the apparent size of that immense spheroid of stellar orbs with their planets, which is known to us as the Milky Way, and in the midst of which our world is situated. We will suppose that the pores of the apple would, in that case, appear of a magnitude equally great with the interplanetary and interstellar spaces, and that the molecules would be magnified to the apparent size of worlds. Moreover, the internal motions of the molecules, observing the natural order of vegetative circulation and progression, would bear a certain resemblance to the rotatory and orbital motions of suns and planets, and all, obeying the law by which the distinct stratifications and compartments of the apple are formed, would give an appearance somewhat similar

to distinct systems, and systems of systems of suns and planets, as these are successively brought into the field of a telescope. Suppose, that after this optical arrangement is completed, some learned Newtonian astronomer, who is entirely ignorant of its nature, is invited, on some clear evening, to look through the instrument, which is represented to him as a newly invented *telescope*, instead of a *microscope*. The astronomer gazes with wonder and astonishment, and thinks he has obtained a new and favorable view of some stellar and planetary creation which has not before appeared to him exactly in the same aspect.

“Well, Mr. Astronomer,” demands an inquirer, “what is your opinion respecting the origin of the motions, the laws of operation, and the source of stability, of the system which you are now surveying?”

“Why, undoubtedly,” replies the astronomer, “the *same principles* are applicable here that apply to *all* planetary and stellar creations;” and if he added no more, he would thus far be correct. But he continues, “Undoubtedly each one of those bodies received a certain mechanical impulse as it was launched into space from the hand of the Creator. Each one moves in a *vacuum*, and would have continued its primitive motion in a *direct line* forever, had it not been deflected from its course by an equal and perpetually operative force of *gravitation*, whence its *present* motion is in a circular or elliptical orbit. If either one of those revolving bodies,” continues the sage astronomer, “were arrested in its orbit, and the centrifugal force were thus destroyed, gravitation would immediately draw it to the central sun, and this would probably so derange the equilibrium of the system as to ultimately produce a universal catastrophe!”

If the astronomer is now shown a *direct* view of the real

subject of these speculations—is shown that it is merely an apple—he will consider this as of itself a sufficient refutation of his speculations, so far as *that* object was concerned; because he considers the internal molecular motions of the apple as being governed by a principle of *life*, and this he regards as of itself amply sufficient to keep up the equilibrium of its particular parts.

But each cluster, or firmament, of suns, with its planets, is, in *principle*, but an apple on a large scale. Some of the more distant, and less easily resolvable, nebulæ, indeed, appear to a telescope of small power, almost in the identical form and size of an apple; and, viewed apart from all other considerations than those suggested by their own proper aspects, as the white, milky spots, which they present to telescopes incapable of resolving them, one might have easily conceived that they were agitated by internal motions; but the conception that these internal motions were referable to external and mechanical impulses, and that the moving bodies (which the distance of view reduces to molecules) were sustained in equilibrio by counter impulses, according to the Newtonian theory of planetary motion, would have been as unnatural and far-fetched, as would be precisely the same theory applied to the internal molecular motions of an apple.

Indeed, it is conceivable that one might be miraculously elevated above the whole plane of sidereal creations to a distance so great that, as he looked down upon the whole universe of firmaments, the *whole* might present one unresolved mass apparently, from that distance, no larger than the size of an apple. Now, when we remember that in the workings of *principles* there is absolutely no distinction made between great and small bodies, how naturally may it be supposed that the whole universe, with all its included sub-universes is per-

vaded, like the apple, by an internal principle of *Life*, and that *this* is the cause of all its internal motions, and the sustainer of equilibrium among all its constituent orbs, which, to it, are in reality no more than what the molecules are to the apple!

But let us endeavor to obtain a more distinct view of some of the constituent elements embraced in this general theory: Our theory, before propounded, of constantly *emanative*, as well as constantly *gravitative*, forces as connected with planets, suns, systems, and firmaments, seems, if correct, to necessitate the conclusion that universal space is constantly *filled* with substance. This substance is in the solid, fluid, aeriform, and ethereal states. In its densest state, it may be supposed to be indefinitely more dense than the heaviest substances known upon earth, and in its rarest state, it may be supposed to be indefinitely more rare than electricity, and between these two extremes, there are probably all intermediates. The universe may thus be regarded as only *one* vast ethereal Body, having in its general mass innumerable points of condensation, which are suns, planets, etc.

Now, the force which originally induced nebulous circles, firmaments, suns, planets, satellites, etc., to assume their respective orbits at specific distances from their primaries, and which perpetually operates (with some modifications, according to different stages of progression) to keep these bodies in those general orbits after they are assumed, may, in a degree, be conceived by the following illustration: The *ponderable* atmosphere of the earth at a level with the sea, is relatively dense, while at the tops of the highest mountains it is relatively rare; and at an altitude of forty-five or fifty miles, according to received estimates, its existence ceases to be appreciable. Hydrogen gas is much lighter than the *ponderable*

terrestrial atmosphere at a level with the sea; and when confined in a balloon, it ascends, with its envelope, to an altitude determined by the degree of buoyancy of gas and balloon united, and there it floats until dissipated. Now, each solar and planetary body in space, is surrounded by a *calorific, luminous, electric, and ethereal* atmosphere, which, in like manner, varies in density and power with the distance from the center of condensation; and, by virtue of the respective super-aerial atmospheres of any two bodies sustaining to each other the relations of primary and secondary, the secondary body assumes an orbital distance from the primary, which, as in the case of the balloon, is governed by the law of equilibrium—which distance, however, is somewhat modified by centrifugal force.

This illustration of the balloon, however, is very imperfect, and only serves to enable the reader to *approximate* to a conception of the true idea; for we are not to consider any planet or other celestial body, as having the same degree of *affinity* for its primary as the balloon has for the earth, or as being attracted to it in exactly the same way, or as it would be, if there were no greater dissimilarity between its matter and the matter of the primary, than there is between the matter of the balloon and that of the earth. But each celestial body is composed of materials, and possesses calorific, electric, odic, and other forces and properties, and hence *affinities*, peculiar to itself, and which, in general, differ from those of any other given body in proportion to the distance of its natural situation. Moreover, each planet, sun, etc., as before intimated, is only the *condensed center* of a general *ethereal* body of no particularly defined circumference, but whose refined emanations, growing more rare with each remove from their centers, extend indefinitely into space. In this way, each body inter-

communicates with, and acts upon, all kindred bodies, and is acted upon by them in return; the action consisting in an interblending of the forces and properties of the different bodies. When this interblending is harmonious, the action is attractive; when it is conflicting, it is repulsive. Beyond certain limits of distance, the interblending actions of any two bodies, however dissimilar in constitution, is always harmonious—and hence attractive; *within* those limits of distance, the action is crowding and conflicting, and hence repellant.

Suppose, then, that by some controlling arm, or some accidental impediment, a planet were suddenly arrested in its orbit, and were thus relieved from the influence of centrifugal force: it would immediately be drawn toward its primary with a force which would uniformly increase as the square of the distance decreased, provided no counteracting force were developed by the approach to the central body. In falling inward, however, although the attractive force would, *for a time*, be increased (that is, until the previous centrifugal displacement was overcome), its elastic atmosphere would begin to crowd more and more upon the elastic atmosphere of the sun, and even its own solidified particles, by the increased calorific, photic, electric, odic, and vital action due to the proximity of the two bodies as centers of such action, would, in themselves, develop an emanative or repellent force in respect to the primary; and, owing to these causes, the secondary body could not approach within a certain distance of its primary, within which distance the repellent force would be *superior* to the attractive.

The same idea is involved in the theory (before propounded) of the process by which secondary bodies were formed from primaries—and which supposes that the secondaries are composed of an equal quantity of *attracted* and *emanated* particles.

As each *individual* of these, acted upon by centrifugal force, finds its equilibrium at the particular point where, by the union of all, the secondary body is formed, so the *united mass* of particles in the body thus formed, has no more tendency to *draw* nearer to the primary than it has to *emanate* further from it.

Suppose, then, any particular secondary body should be violently arrested in its orbit: it would evidently sink into the ethereal atmosphere of its primary a distance measured by its previous centrifugal displacement, which, in most cases, would be considerable; but at some point between its former orbit and the primary, it would attain to an exact equilibrium between the attractive and emanative or repellent influences, and there its inward motion would stop. If held there by violence, and prevented from partaking of the general vortical motion of the system, it would be to the *cosmical* system what a mass of displaced particles, or a splinter of foreign matter, would be to the *human* system; and the effect would be, an inflammation, suppuration, and dissolution, of the part. For, it is evident that in such a case the body would accumulate heat and other repellent elements from the primary, more rapidly than it could relieve itself of them, and sooner or later these accumulations would be beyond its powers of endurance. The particles in that case would separate in detail, and would either be digested and assimilated with the general mass of the primary and its atmosphere, or, assuming the general revolutionary motion of the system, would be again thrown outward by the resultant centrifugal force, and would reaggregate themselves at their original distance, and the planet would be formed anew.

For an explanation of the principles on which all rotatory and orbital motion may originate, the reader is referred to an earlier stage of this treatise, in which we spoke of the first

assumption of rotatory motion in the universal mass : and, by considering the universe still as one general Body, interiorly gravitating and emanating as in the beginning, he may conceive how these motions, not only of the great *general* Body, but of all its included and correspondent *sub-bodies*, is perpetually sustained by a constant supply of the same forces which operated in the beginning, and which constantly inflow from the inexhaustible sources of Divine Spiritual Heat and Light, which mean Love and Wisdom, and which constituted the Alpha and Omega, the first and the last, the beginning and the ending of this grand creative operation ! What can be a more natural thought than that the universe is constructed, and that all its functional operations are carried on, according to the foregoing principles ! and what hypothesis relating to this grand subject is so free from difficulties !

If the universe is actually constructed on these principles, it manifestly possesses (under the operations of its pervading Divine Life) a self-regulating power which must necessarily give it the utmost conceivable stability—the stability of an almost infinite living Organism, exempted from all external causes of death ! Let planets be crowded out of their orbits, if such a thing were possible (which it is not), and they will either spontaneously return again, or new arrangements will be assumed among their associate bodies, which will be according to the law of equilibrium, and equally harmonious with the previous condition. Let planets, or even whole systems, by any imaginable means, be stricken out of existence : there would be an immediate supplying of the vacuum—a healing up of the part—and scarcely a cicatrice would remain. In short, let the system, by some imagined foreign force, be wounded and deranged in almost any conceivable way : it would still contain an internal power of recuperation. But as a Divinely

constituted Fabric, destined to unspeakably noble and glorious ends, it is entirely free from all causes of material disturbance, and will live on until its highest purposes are fully attained, when, as one Grand Man, it will change its whole mode of being for one which is more spiritual, more Divine, and inconceivably more glorious!

## CHAPTER XI.

### PARTICULAR CONSIDERATIONS CONCERNING THE GENESIS AND MODUS OPERANDI OF THE SOLAR SYSTEM.

LITTLE more needs to be said, by way of applying the foregoing principles to the genesis and *modus operandi* of our own Solar System. It has been before intimated that the identical principles are involved here that were concerned in the origin and government of the universe, as a whole, with some modifications in the form of their results, as owing to differences of conditions, and that the seven-fold series is observed in the laws, operations, and successive stages of unfolding, in both instances. In both instances there are the successive and ascending degrees of Chaos, Nucleation, Spheroidation, Circular Agregation, Segregation, Secondary Spheroidation, and the complete and ultimate cosmical unfolding. In both cases the dynamic agents of Heat, Light, and Electricity, with their corresponding triad of odic elements are involved, to which, in both cases, is superadded the all-pervading and controlling Divine Life Principle.

The chief differences in the *specific forms* of developments in the two cases, lies between their fourth, fifth, sixth, and seventh degrees. In the series of developments through which we have supposed the universe, as one whole Body, to have passed, we have supposed the *fourth* development to be that of *nebulous rings*, surrounding the primary spheroid—or, at least, segments of rings so large, and of such various parts, as

to preclude the possibility of an aggregation of the materials of either ring or segment, into *one* spheroidal body; while, in the Solar System, the size and other conditions of each of these cycloidal nebulæ were, with apparently one exception, such as to admit of an aggregation into one spheroidal body. The exception here referred to relates to the mass of materials from which originated the asteroids. The *fifth* or *segregative* process in the *universal* development, consists, according to our hypothesis, of the division of each nebulous ring or segment, into a *multitude* of angular and indefinitely formed masses; whereas the fifth and corresponding development in the *Solar* System, consisted (in every case except that of the asteroids, as before mentioned) simply of the breaking up of the nebulous ring, and the assemblage of its parts into *one* body. The processes of the sixth development, both of the Universe and of the Solar System, were perfectly identical, except that in the former case *solar* spheres, and in the latter, the gaseous and incandescent spheres of nascent planets, were the result. The *seventh* development of the universe consisted of the unfolding of the identical forms which were the product of the sixth development of the solar system, viz., the forms of nascent planets, as aforesaid; whereas the *seventh* development of the solar system, consisted of the superficial solidification of those bodies, and such other changes in them as prepared them for the introduction of the first and lowest of the organic forms, by which they were subsequently tenanted.

But although the Universal System and the Solar System thus each consists of a complete octave of developments, each octave has its own particular key-note, which differs from that of the other. That is to say, they do not begin at the same place in the staff, nor does one begin where the other ends.

This, however, does not in any respect destroy the correspondence of the *principles* which both involve.

After the sun and planets were thus formed by agglomerations and condensations of the originally diffused mass of chaotic materials, there would naturally still remain in diffusion through the general sphere of the system, a quantity of mundane matter, so great as to be liable, under the further action of the law of condensation, to ultimately assume forms more or less distinctly visible. This consideration hints at the origin and character of those erratic, and in some cases apparently almost lawless bodies, called *comets*. These are mere *excrescences* upon the system—*incidents* of previous developments; and their anomalies of constitution and motions are probably the results of their borderings upon the extreme confines of the forces and laws provided for the government of the system. Aside from some illustrations of cosmical laws which they afford, they probably subserve no purpose which is much more important than that of the amusement of astronomers.

This idea of residual nebular matter also accounts for that singular nebulous and oblately spheroidal envelope of the sun, which is called the “Zodiacal Light.” Probably neither the formation of this nor of the comets, was specifically contemplated in the original plan of the Creator, but the development of each was *incidental* to the uniform operations of established laws.

As originated our own solar system, so we may suppose originated all other solar systems in space, with differences in the *forms* of the operations and results of identical principles, according to differences in material conditions and local circumstances.

## CHAPTER XII.

### SYNTHETICAL VIEW OF THE ORIGIN OF THE EARTH, AND ITS GEOLOGICAL FORMATIONS.

THE last developed forms of the universal cosmical structure, viz., the distinctly segregated masses of planetary matter before described, may be viewed in the light of *Seed* of the great Tree of previous Being, and Germs of a future and corresponding creation. By means of a generative influence constantly descending from the Divine Spirit, as the Source of all subordinate existences, a corresponding octave of unfoldings now ensue, which may be called the *geognostic* unfoldings. The successive stages of these, which, like other systems of creation, form a *seven-fold series*, seem, both in the light of *principles* and *facts*, to observe the following order and relations :

#### PRIMARY TRINITY.

1. Chaotic or unformed fiery vapor.
2. Spheroidal nucleus (liquid and gaseous).
3. Granito-aqueous, or, superficially solidified and oceanic.

#### SECONDARY TRINITY.

4. The "Transition Period," characterized mainly by aerial developments and changes.
5. The "Secondary Period," characterized by distinctions of climates and seasons, and their corresponding sedimentary deposits.
6. The "Tertiary," or, the volcanic, lacustrine, fluvatile, and abrasive Period.

#### ULTIMATE.

7. Recent or Alluvial Period.

In our descending or analytical view of creation, we spoke briefly of some of the more superficial characteristics of these terrestrial developments; but we will now glance at the aspects in which they will appear in the light of the *à priori* and *à posteriori* processes of reasoning combined.

1. THE CHAOTIC STAGE.—In our analytical and analogical view of the terrestrial system, we found abundant reason to believe that our earth was formed from a mass of primeval fiery vapor, as expressing material conditions *antecedent* to the fiery *liquid* mass, of which, facts prove that our globe once consisted. Following the further and obvious teachings of analogy, as well as the intimations of certain celestial phenomena, we were led to the conclusion that this mass must have been a result of a previous aggregation and segregation of the materials of the solar atmosphere, of which an explanation is involved in the now apparently well-established theory of the formation of the nebulous rings, and their subsequent changes.

It seems to be a well-founded opinion of believers in the nebular theory, that the gaseous cycloid, whose condensation resulted in the formation of the earth, must have originally been nearly of the same shape and circumference with the present orbit of the earth. Now, the earth's orbit is not an exact circle, but an ellipse, with the sun in one of its foci. Consequently, at the separation of the materials of this ring or cycloid at one part of its rim, and their aggregation at the opposite part, whether this occurred at the perihelion or aphelion point—the common mass thus formed must have taken the elongated or ellipsoidal shape, and preserved superficially all the general geometrical properties of the previous circumsolar zone, on a reduced scale.

The first distinct form assumed by the materials of our

nascent planet, therefore, must have been that of an ellipsoid, or, perhaps, more properly speaking, that of an egg somewhat flattened in the direction of its shorter diameter. The *two ends* of this ellipsoidal body, preserving, respectively, the general qualities of what were its aphelion and perihelion points when, during its previous and higher state of diffusion, it encircled the sun, must now sustain toward each other the relations of *positive* and *negative*.\* The atoms having the strongest affinity for the positive influence, therefore, would naturally flow toward the positive end; and those having the strongest affinity for the negative influence would flow toward the negative end. There would, therefore, be a tendency of the particles to agglomerate and condense in the form of a separate nucleus near *either end* of the general body, or, more accurately speaking, probably in either *focus* of the ellipse. If the particles are sufficiently diverse from each other as to their extreme degrees of positiveness or negativeness, and other circumstances are favorable, the tendencies to agglomeration and condensation at these two points, may result in the formation of a primary planet and a satellite; or, if there are several degrees of matter widely distinguished by their relatively positive and negative qualities, a correspondingly complicated operation of the same principles and forces, may result in the formation of *several* satellites.

The idea of a tendency to, and condensation in, the foci of the egg-shaped nebulous mass, thus forming a primary and a satellite, and that this tendency indicates a *law*, is in precise

\* In employing the terms "positive" and "negative," as above, it is not intended to restrict the idea of the polar relations which they express, to a connection with electricity or magnetism. These relations may be supposed, in some sense, to subsist between the two extremes in the development of *each* of the imponderables. Reichenbach, as we have seen, found unmistakable indications of these polar relations existing in the "odic" element, with its different varieties, by him discovered.

accordance with, and explains, the fact, universal in the solar system, and doubtless in other departments of the cosmical creation, that when bodies (whether planets or satellites) revolve in *elliptical* orbits, their primaries, or centers of gravity, are invariably situated in one of the foci of the ellipse, precisely where, according to our theory, such bodies must, in all probability, have been originally formed. It may be added that, of the fact of this *focal*ity in the situation of primaries with reference to the elliptic orbits of their secondaries, no other hypothesis than the general one now under consideration affords the slightest explanation.

Considering the earth and the moon as having, in this way, been formed respectively by condensations in the foci of the same original nebulous mass, their origin and relations may be considered as hinting at, if not exactly representing, the origin and relations of the two bodies of what are called *double stars*, or binary systems. The *diversity of colors* generally observed as characterizing the two constituents of such systems—the larger body being, in most cases, relatively red, and the smaller relatively blue, as though they had divided the prismatic colors between them—strongly intimates, of itself, something like a *polar opposition* in the materials of which they are respectively composed, and gives additional weight to the hypothesis of their original and nebulous connection.

The hypothesis of an original union in one nebulous body of the materials of the earth and moon, seems, indeed, to be necessary, if there is admitted to be *any* truth in the nebular theory. But, if this hypothesis is true, it suggests a connection of a nature heretofore little suspected, as even *now* subsisting between the earth and moon. Taken in connection with our doctrine of constant *emanation*, as well as constant *gravitation*, of particles governed by the laws of assimilation,

elimination, and polarization, it encourages, if possible, even more than a suspicion, that the earth and moon are but condensed and oppositely polarized points in one common mass of ethereal, magnetoid, or "odic" substance. Such an ethereal mass, considered as the common calorific, photic, electric, odic, nervoid, and vital sphere or atmosphere of the earth and moon, would seem to be a necessary existence, according to principles involved in the discoveries of Reichenbach; while, on the other hand, and in a still more emphatic sense, the earth and moon in their present state, may be supposed to consist of *precipitated particles* originally held in solution in their now enveloping ethereal and imponderable menstruum.\*

This field or realm of segregated ether supporting these now condensed points, may, in its present state, be considered as an ultimate refinement of the primeval nebulous mass from which our world and its satellite had their common origin. Though its ultimate attenuations, intercommingling with those of kindred bodies (yet still preserving their identity) may be supposed to extend indefinitely into space, the relatively dense,

\* It is well *known* that particular positions of the moon in respect to the earth, are accompanied with marked effects upon somnambulists, cataleptics, and persons disposed to insanity; and it has from time immemorial been *believed* that certain lunar positions have also a decided influence upon the vegetable and animal kingdoms. During eclipses of the sun, when the moon has been directly between that luminary and the earth, hungry animals have been observed to suddenly cease eating, and become apparently sad and dejected; and when eclipses have been total, birds have sometimes been known to fall dead from their perches. Now, neither of these effects can be supposed to result from any modification of the force of *gravitation* as owing to the relative positions in such cases, of the earth, moon, and sun. But if we suppose, as is supposed above, that the earth and moon are enveloped in a common "odic" sphere of a nervoid and semi-vital character, and that this changes in its polar relations and consequent qualities of influence upon living organisms, with every change of relative position of the earth, moon, and sun, we have an easy solution of the phenomena in question. The supposition of such a change of influence would seem to be countenanced by the results of Reichenbach's experiment with the revolving magnet, before spoken of.

or the rationally more obvious, portion of the body, still retains, in all probability, the general shape and size of the original nebula. If we suppose this spheroid of imponderable matter to be rotating on its own proper axis once in twenty-seven days, seven hours, and forty-three minutes, carrying the earth and moon with it as its *condensed foci*, we have, in such supposition, an explanation of the motion of the moon round the earth as it appears to us, and of the motion of the earth around the moon as it would be *mathematically* evident to an inhabitant of the latter body. If this supposition is correct, then neither body ought to move round the other as an absolutely fixed point in the system, but both ought to revolve around a *common center*—the axis of their common ethereal and enveloping mass. But, considering the superior attractive force of the earth over the moon, together with the superior density of that *whole end* of the ethereal mass in which the earth is situated, to that of the end in which the moon is situated, this center of common revolution can probably vary at most but a few hundred miles from the center of the earth, and may be very nearly coincident with it.

I believe that astronomers are now pretty generally convinced that in binary stellar systems, one body not only revolves around the other, but that the two bodies revolve round a *common center*, situated somewhere between the centers of the two, and nearest to the center of the larger one; and to these motions, those of the *binary* system of the earth and moon would, according to the foregoing hypothesis, present an exact analogy.

The earth, being the *major* or *positive* focal condensation of the general ethereal and enveloping spheroid, has assumed sufficient independence to admit of a diurnal revolution on its own proper axes; but the moon, being the *minor* and *nega*

*tive* focus, still continues in subjection to the force of the *general ethereal* mass which is *positive* over it; and therefore, keeping the same side always to the earth, it rotates only with the rotation of the general mass.

If our hypothesis is correct, then not only ought the sides of the moon turned to and from the earth, to be in opposite polar relations, but there should be a slight *elongation* of the moon in the same direction, presenting, in fact, the dwindled and miniature form of the original nebulous or present ethereal spheroid. On the same principle there must have been a tendency to elongation in the form of the earth, while the particles which compose it were in process of aggregation. This tendency, however, so far as the *solid*, or *less mobile* materials of the earth are concerned, was corrected by its *rotation* on its axis, by the perpetual action of which, during the period in which the earth passed from a fluid to a superficially solid state, the surface of the earth was rolled into general rotundity. But the mobility of the *watery* portions of the earth's surface, was such as to preserve, in a degree, their freedom to observe the original tendency to ellipticity, *which tendency is now manifested in the form of tides*. For tides are only elongations of the *mobile* portions of the earth's substance, in what we have supposed to be the direction of the longer axis of the ethereal spheroid, which axis would necessarily be in the direction of the earth and moon, admitting these bodies, as points of condensation in the general body, to occupy generally the two foci of the latter. There are, doubtless, for the same reasons, *atmospheric* tides which are greater than the oceanic tides in proportion to the greater mobility of the atmospheric particles; and had not the earth assumed a rotatory motion (from causes identical with those which produced a similar motion in other bodies, and which

have been before explained), it would doubtless have condensed (as we have supposed the moon to have done), in a permanently oval form, whose opposite ends would, if the expression may be allowed, have represented *solidified tides*.\*

With the evolutions and condensations above supposed, or, at least, with something not essentially differing from them, the materials of which our earth is composed, may be supposed to have passed out of their first or chaotic state.

2. The SECOND stage of the earth's developments, as obviously the next orderly stage of progression from the first, was that of a *spheroidal igneous nucleus*. This stage, indeed, commenced the moment the nucleus began to appear; for then the general body, by the *distinction* developed in its parts, began to pass out of the state of absolute chaos. It may be considered that this development closed when the outer limits of this igneous nucleus became *distinctly defined*, and when its merely molten and fluid substance became fully distinguished from its gaseous envelope.†

3. The THIRD stage may be denominated the *granito-aqueous*, it being the stage characterized by the formation of the first granite crust, and by the development of the oceans by which the latter was generally covered. This, completing as it did the first Trinity of terrestrial developments, brought the earth from a previously elastic and yielding, to a solid and perma-

\* These suggestions, tending, as they do, to an essential modification of the Newtonian theory of tides, might be greatly fortified by additional considerations; but to present these in their proper force, discussions would be required which would be too occult for a popular treatise.

† The foregoing considerations in respect to the first and second stages of the earth's formation, are admitted to be mainly *à priori*, but to those who can perceive effects as involved in their causes, they will not be without weight. In respect to the remaining stages of development, we will not only have the evidence of *causes*, but of their *effects*, as still *observable* in the earth's crust

ment state, and thus completed its constitution merely as a *planetary body*.

4. The FOURTH stage was characterized mainly by aerial developments and changes. It embraces that vast period during which the rocks of the Cambrian, Silurian, Old Red Sandstone, and Carboniferous systems were formed. At the commencement of this period, the atmosphere must of necessity have been in an exceedingly crude and impure state. Besides other gross and noxious elements, it must have borne in its bosom all, or nearly all, of the carbonic acid gas which subsequently became condensed in the mountain limestone and various other limestone deposits, and the carbon of which, parting with its oxygen, became embodied in the immense beds of mineral coal, found, more or less, in almost every quarter of the earth. An atmosphere thus surcharged with this noxious vapor, must have been incompatible with the existence of any forms of organic life, except those of a low order; and accordingly we find that the plants and animals of this vast period were, as shown by their fossil remains, exclusively such as inhabited the ocean and the marshy and frequently submerged places in its vicinity—situations intermediate between the properly marine and the properly terrestrial.

It was, doubtless, owing mainly, if not wholly, to atmospheric causes that the solar rays during this period had but little influence upon the surface of the earth, and that a nearly uniform temperature prevailed at all latitudes and at all seasons. Geologists have usually attempted to account for the high degree and general uniformity of this temperature, as indicated by the universally tropical nature of the plants and animals of this period, by referring it to a radiation of the internal heat of the earth, which it is supposed must, at that early period, have been much more intense than in subsequent

times. But the mystery seems to be quite as well, if not better, accounted for in the consideration that while the atmosphere was so excessively dense as it must have been while loaded with so much carbon and carbonic acid, *its pressure* must have been correspondingly great; and it is well known that every increase of atmospheric pressure is attended with an increase of heat. It is not improbable, however, that both of these causes had something to do in the production of the superior heat of these times.

The scene which would have been presented to a human spectator, could such an one have been placed upon the surface of the earth at this time, would have been gloomy and cheerless in the extreme. He would probably at no time have beheld either clouds or decided sunshine, but a dim and undefined luminescence, caused by the sunbeams in passing athwart the thick and stagnant atmosphere. No star-beam could have penetrated the dense aerial envelope to relieve the gloom of night; and, for the same reason, the range of horizontal vision, even at noonday, must have been confined within narrow limits. All diversity of landscape must, in the earlier part of this period, have been merged in one wide waste of waters. This, however, was, in later times, partially relieved by extensive districts of low, marshy land, on which the soft and succulent vegetation grew with the rankest luxuriance. No bird yet winged the air, or gladdened the forest with its song; no beast prowled through the thick jungles of fern and sigillaria, and no herds lowed upon the fields of moss and equiseta; and, except the rolling of the ocean waves, the plashing of the finny tribe, and the occasional rumblings of subterranean fires, the most profound and gloomy silence reigned over the face of the globe!

If, therefore, in the first stage of the first Trinity of devel.

opments, the whole mass of *terrestrial* materials was in a state that may be designated as chaotic, we find here, in the first stage of the second Trinity, a corresponding condition as relating to the whole mass of *atmospheric* materials, and of its accompanying developments as the initial steps of terrestrial organic creation. Taken as a whole, however, the changes of this period brought conditions on the earth's surface into something like a systematic, or what may be called rudimentally organized, form.

5. The FIFTH development was characterized by distinction of climates as prevailing in different latitudes, and by warm and cold seasons, as owing to the revolution of our planet around the sun; hence, also, by new kinds of geological deposits, and higher degrees of organic life. This development was comprised in the period commencing with the New Red Sandstone, and ending with the close of the Chalk formation.

The records of the general conditions of this period are very distinctly preserved upon the leaves of the rocky book. On the laminae of the New Red Sandstone rocks in various localities (and especially in the valley of the Connecticut River), are found the distinct footprints of birds of various species. These appear to have been impressed upon the sandy and clayey margin of an ocean at low tide, and to have been covered up by successive thin layers of sand and clay drifted in by the swelling tide. On the same rocks occur marks whose angles and other characteristics clearly prove them to have been made by *frost*. They are in form exactly identical with those which are now produced by frost in the mud upon the borders of a stream. These appear to have been covered over and preserved, in like manner with the tracks, by the detritus swept in by the returning tide. But it is noteworthy that, although these tracks and frost marks occur in abundance

above and below each other in the same system of rocks, *the two are never found upon the same lamina*—as though the birds, during the *frosty season*, were entirely absent, having migrated to a *warmer climate*, to return again with the *return of summer*.

On the same strata are also sometimes found impressions which could only have been made by the pattering of rain-drops during the passage of a small shower-cloud; and the forms of these sometimes even infallibly indicate the course in which the *wind* was blowing at the time!

Here, then, is the earliest distinct indication of the prevalence of atmospheric conditions somewhat similar to those which *now* obtain upon the earth's surface. We find, here, unmistakable evidences of summer and winter, warm and cold latitudes, rain, winds, clouds, and sunshine—conditions which clearly could not have existed to any great extent, during any previous period.

Concerning the relics of the olden time, from which these atmospheric and terrestrial conditions are inferred, Professor Hitchcock (to whom the scientific world is much indebted for bringing them to light) remarks: "It is a most interesting thought, that while millions of men, who have striven hard to transmit some trace of their existence to future generations, have sunk into utter oblivion, the simple footsteps of animals that existed thousands, nay, tens of thousands, of years ago, should remain as fresh and distinct as if yesterday impressed, even though nearly every other vestige of their existence has vanished. Nay, still more strange is it, that even the pattering of a shower at that distant period, should have left marks equally distinct, and registered with infallible certainty the direction of the wind."\*

\* Hitchcock's Geology, p. 155.

The terrestrial animals of this period were almost exclusively oviparous, partaking largely of the sauroidal, or lizard-like type, which latter remark is even applicable to the birds. Toward the close of the period, however, an animal appeared which may be regarded as a transition link between the oviparous and viviparous. It was an animal of the class Marsupialia; in other words, an animal with a pouch, like that of the opossum, or kangaroo, in which it sheltered and nourished its young for a season after their birth, the same being yet too feeble and imperfectly developed to endure exposure to the outer elements. It has hence been remarked that, "though the young of this animal were born alive, they were only *half* born, as it were," and needed a kind of supplementary gestation to fit them for life in the external world.

Like the fifth development or member of every other seven-fold series, therefore, *this* is characterized by the assumption of *distinctness*, or partition, in forms and gradations of forms, from a state of previous and comparative *indistinctness*. The *principle* of *segregation* is here distinctly observed, the same as it was in the fifth stage of the *universal* creation. Each one of these forms, being yet transitional and incomplete, is, as it were, a nucleated point in the previously chaotic materials and their involved principles; and therefore the whole development, being the second of the Secondary Trinity, has a certain correspondence to the second of the Primary Trinity, which was characterized by a *nucleation* of the materials of the earth as a whole.

6. The SIXTH stage of the earth's formation was comprised in the whole period commonly termed the Tertiary and Diluvial periods. It commenced immediately after that remarkable marine, terrestrial, and atmospheric change which must

necessarily have accompanied the great Chalk formation, and closed immediately prior to the commencement of the present or Alluvial period. It was distinguished from the previous stage of terrestrial developments, mainly by its lacustrine, volcanic, and fluvatile conditions, and by the erosive, leveling, and harmonizing operations which, especially near the *close* of the period, occurred on the earth's surface. These conditions were evidently an improvement upon previous ones. The earth became more extensively diversified by mountains and valleys, forests, fields, and running streams. The quantity of upland and fertile soil was greatly increased; the atmosphere was freed from previous pestilential vapors; the climates were rendered more salubrious, and all things were more compatible with the existence of higher species in the organic kingdoms. Accordingly, even in the lower strata of this formation, there are found the remains of animals of decidedly mammiferous species. These are of the order *Pachydermata* (thick-skinned), and of comparatively low organization. But as conditions advanced and new strata were deposited, higher species successively made their appearance, organic life all the while assuming more analogy to existing types, until, toward the close of the period, there was, in many instances, an actual shading off into species which now inhabit the earth. This latter remark is equally applicable to the vegetable, as it is to the animal, kingdom.

About the close of this period, there appears to have been a remarkable fall of atmospheric temperature, accompanied by a submergence of the greater portion of land in the northern and temperate regions, in seas filled with floating icebergs. These icebergs, frequently reaching to the bottom of the ocean, have scraped along over the earth's surface, clashed violently against its prominences, torn fragments of

rock from their original beds, pushed them along before them, the friction rounding off their angles, and reducing many of them to sand and pebbles. Sometimes large masses of rock would get wedged in between, or thrown upon the tops of, blocks or projections of ice, and would be floated to great distances and scattered over the country. Boulder rocks which must have been transported in some such way, have been identified with rocks "in place" to which they must have originally belonged, from a few hundred yards to several hundred miles to the north of where they were found. Sometimes boulders of great magnitude have been carried over steep and high mountains, and are not unfrequently found lodged upon their summits and scattered over their southern declivities; and the long-continued passage of rocky fragments and detritus transported in this way, has worn scratches, and sometimes deep groves in the mountain rock, all of which have the same general direction, which is nearly north and south—proving that such was the general direction of the current. By this operation, which was evidently long-continued, rugged mountain escarpments were reduced; deep hollows were filled up, and the face of Nature was made to assume fairer proportions. In short, the terrestrial structure being generally completed, this final operation (to illustrate a great thing by a diminutive comparison) seems to have been the *smoothing* and *sand-papering* process to which it was subjected, before being applied to its ultimate and principal use as the habitation of its future tenant, MAN.

This superficial smoothing and rounding of the earth, and its completion as a *habitable globe*, being the third member of the Secondary Trinity of terrestrial developments, manifestly bears a certain correspondence to the third member of the Primary Trinity, or the granito-aqueous development, which

brought the earth to completeness, considered merely as a *planetary sphere*.

7. The SEVENTH terrestrial development, which now ensues, is that which is going on at the present time. It is characterized by sedimentary deposits from existing waters, and by the oceanic, terrestrial, and atmospheric changes which are now imperceptibly going on; and its ushering in was accompanied by the introduction of MAN, together with most of the animals and plants of existing species. This, therefore, is the grand culminating point of all terrestrial creations, and brings the seven-fold progressive series to a completion. It is the grand point that was aimed at in the beginning of beginnings, and the great object the accomplishment of which each intermediate movement was intended to subserve; and now that it is attained, the previous conflicts of elements—the clashings of an impetuous nature, as if reaching forward and striving impatiently for the attainment of its final destiny, are lulled into repose. The heavings of the earthquake and the spoutings of subterranean fire through the broken strata which were so devastating in previous ages, have now in a great measure subsided, or occur only in limited districts and at long intervals. Mountain and plain, forest and field, ocean and atmosphere now testify their common satisfaction with the end which has been gloriously achieved; and man, undisturbed, proceeds to beautify and adorn the earth, and, with no other interruptions than such as are due to his own folly, pursues his rounds of progress toward a destiny still more glorious and sublime!

Of course the foregoing remarks in reference to the genesis of the earth, are to be considered only in the light of a *general survey* of the subject to which they relate, and as being intended merely to establish general principles and

analogies to be used as aids in discovering or confirming ulterior and corresponding truths. Such being our main object, we have abstained from descriptions of non-essential minutiae which may be found in the geological books. We have, however, recognized all facts which have any essential bearing on the subject of our speculations, and by the aid of these facts, and of the general laws of causation and analogy which govern them, and necessarily connect them with corresponding antecedents and sequences, we have *inferred* the general nature of those necessary links of the system which are lost to sensuous perception. Hence we have commenced with descriptions of conditions far more primitive than those from which geological writers in general have started, and by the aid of the correspondences existing between one system of developments and another, as exhibited in the law of the seven-fold series, we have endeavored to exhibit the roots of the tree of Geology as growing upon the soil of Astronomy.

If the whole subject, as thus unfolded, exhibits a self-supporting and self-proving consistency, it in no small degree tends to establish the correctness and importance of the method of reasoning from which it receives its support.

## CHAPTER XIII.

### THE GEOLOGICAL AND MOSAIC REVELATIONS.

ONE of the first thoughts which strikes the mind as it contemplates the foregoing view of the natural history of our planet is, that the developments spoken of could have been accomplished only in periods too vast for human conception. Admitting that the process of unfolding which finally resulted in bringing our globe to its present habitable and mature state, commenced when its materials were all in a state of diffused igneous gas, it is utterly beyond the power of man to conceive the period which must thence have elapsed before these materials were so far contracted as to admit of the first superficial granitic incrustation. But after these untold myriads of ages had quietly rolled into the depths of the past, sedimentary materials, which, according to statements of Dr. John Pye Smith, as the results of careful measurements, must have had an aggregate thickness of *not less* than twenty miles, took place, for the most part quietly, at the bottom of the ocean. These materials, including the remains of plants and animals of now extinct species, and whole races of which were successively brought into being and swept away, were afterward slowly consolidated into the form of the existing fossiliferous rocks.

As to the number of years or centuries which must have elapsed during this mighty operation, we have the means of

making, in our calculations, only a remote and indefinite approximation. During comparatively short periods of violent physical revolution, conglomerates and other coarse and indistinctly stratified rocks may, in some instances, have been deposited with comparative rapidity. Older rocks were probably disintegrated by the combined agency of heat and water, and ground to fragments by volcanic and marine agitation; and, by violent currents, probably thus generated, they may have been carried to lower levels, and sometimes formed thick deposits in comparatively short periods. But these instances are only exceptions to the general rule, while far the greater proportion of the stratified rocks present unmistakable evidence of having been deposited in quiet waters. And these deposits could not, in general, have accumulated much more rapidly than similar ones which are going on at the present time. Now, it is said that the lakes of Scotland shoal, by sedimentary depositions, only at the rate of about six inches in a century.\* Making all reasonable allowance for the superior activity of early disintegrating and depositing forces, the period which must have been consumed during the deposition of materials which have formed rocks of twenty miles in perpendicular thickness, can be estimated only by millions of years, especially when we take into account the long periods of super-marine elevation and repose which sometimes must have intervened between the close of one formation and the commencement of the succeeding one.

Our conception of the immensity of the periods of these deposits is augmented when we consider that beds of rocks of great thickness, and sometimes whole mountains, many thousand feet high, are made up almost entirely of sea-shells and other organic matter—these mountains having originally

\* Hitchcock's Geology, p. 163.

constituted the sea-beds, from which position they were subsequently elevated by subterranean forces. The animals and plants, whose remains are thus preserved, "must have lived and died" (says Professor Hitchcock) "on or near the spot where they are found; while it was only now and then that there was current enough to drift them any considerable distance, or break them into fragments; \* \* \* and frequently all the shells found in a layer of rock, lie in the same position which similar shells now assume upon the bottom of ponds, lakes, and the ocean; that is, with a particular part of the shell uppermost."\*

Nor will we be astonished at these evidences of the high antiquity of our globe, when we consider the immense periods which seem to be consumed in its appointed movements in space. For if there is any dependence to be placed upon the observations and mathematical reasonings of Maedler and others, the whole solar system is rapidly moving around a remote center, in an orbit so vast, that a single revolution can not be accomplished in less than eighteen millions of years! Considering this period as the *annus magnus*, or great year of our planet and the family of orbs to which it belongs, it may have accomplished several of these grand revolutions since it assumed an individual existence, and still be only in the *first years* of its existence—an existence which may continue through as many such revolutions as there are days or hours in the ordinary life of man! In fact, in the development of the plans of an infinite God, who has a whole eternity as his working period, it may emphatically be said, that "a thousand years are but as one day."

But these wonderful deductions from scientific facts have

\* Hitchcock's Geology, p. 88, 90; also, Silliman's Appendix to Bakewell's Geology, p. 544.

given alarm to many theologians, who have considered them as conflicting with the Mosaic account of creation, as recorded in the first chapter of Genesis. This account has by them been considered as circumscribing the period of creation to six literal days, during which it is supposed, that not only the earth and all it contains, but the sun and planets, if not even the fixed stars, were brought into being. They have hence looked upon the statements and speculations of geologists with disfavor, supposing that their tendency was to undermine the authority of the Bible. The present treatise, therefore, would be incomplete were I pass over entirely unnoticed the question pending between geologists and theologians. This question, however, I can now only consider in brief, exhibiting merely the general aspects of the controversy as they appear to me.

But before entering directly into the merits of the question, I would premise that all truths must be consistent with each other, whether found in the Bible or in Nature. If, therefore, there is any conflict unmistakably manifest between the teachings of these two authorities, it inevitably follows that one or the other must be untrue; and the untruth is most rationally predicable of that which is most liable to be tinctured by human invention.

Now, the system of creation, though subjective and phenomenal when considered in relation to God, is positive and independent when considered in relation to man. The pages of the rocky book were inscribed by no human amanuensis, and contain none of the whims and errors of perverted human thought. When *correctly interpreted*, therefore, they are to be relied on as infallible, and no theological teachings which contradict them can be considered as the teachings of the same God who wrote those imperishable pages with his own

hand. This consideration forces the conclusion, however reluctant we may be to admit it, that that system of theology which can be thrown into a trepidation by the unfolding of a fact in nature, and which, in any case, treats with hostility, or even with disrespect, the positive deductions of science, can not, thus far, have any counterpart in the mind of that Being who is the Author alike of nature and of heaven, and of the one harmonious system of truth which, in various and corresponding degrees, pervades and constitutes the life and law of all things.

True theology, therefore, has no more favors to ask of true science, than the latter has to ask of the former. Neither one of these, in any case, is alarmed by, but always rejoices in, any additional development in the other, because the two are brothers in affectionate unity, and each one contributes to the other of its own riches and strength, and neither can languish without weakening the other in a corresponding degree.

Some theologians, desirous of maintaining their preconceived interpretations of the first chapter in Genesis, have argued, that since it is possible for God to do all things, it was possible for him, with a single stroke of his omnipotent power, to create the myriads of sea-shells, the impressions of plants, and the skeletons of the higher animals, in their progressive order of superposition, in the rocks. just as we now find them! This might be admitted, if it could first be conceived as possible for God to have had a previous *will* and *purpose* in the generation of forms which, in such a case, would have been, to human conceptions, so *evidently useless*;—and so, with the same qualification, it may be admitted that God *might* have created Herculaneum under the beds of lava, and the Egyptian mummies in their tombs, just as we now find *them*:—but to consider it in the least degree probable

that God actually did do either of these things, would be to set all analogy at defiance, and to take an everlasting leave of those guides to truth to which the human mind is largely indebted for all of its substantial progress. If, however, we abstain from such a violation of the *God-established* laws of our rational nature, we must admit in their full force the manifest indications of fossilology and lithology, in reference to the immense periods which must have elapsed during the genesis of our globe, and of the various and successive races of living organisms by which it was tenanted prior to the introduction of man.

Having the utmost confidence in the inherent strength and invulnerability of *true* theology, therefore, we affirm, without any delicacy or evasion, that if the six days of creation, spoken of by Moses, mean only six times twenty-four hours of our time, then the chronology of the stages of creation, as given by him, is manifestly untrue. But with a perfect willingness to find the account, true or untrue, as the case may be, let us examine the account *fearlessly* and without reserve, and endeavor to discover its real import.

In order to do justice in our interpretation of any writer's language, we must, of course, have a due regard to the meaning which context, the nature of the subject, the circumstances, objects, and personal condition, of the writer, and the modes of speech prevalent among the class of writers to which he belongs, conspire to fix upon his language. This rule is so obviously true, that no candid mind will fail to recognize its propriety at once. Now, the book of Genesis (as is the case with other books of the Bible) was written in an age and a country in which *symbolical* language was much in vogue. It also claims, like other sacred books, to have been written by a spiritually illuminated person, and for spiritual purposes;

and, admitting these claims, its peculiar forms of thought and expression must be admitted to have been governed, to some extent, by *spiritual laws*; and according to these same laws, therefore, they must be interpreted. Now, one way, and, in some instances, the only feasible way, of conveying in human language a deep interior idea is, by presenting it in the verbal imagery of some familiar exterior fact, which embraces within itself the *identical principle* which is involved in such interior idea. That this rule was observed in all the parabolic, and much of the prophetic and descriptive language of the Bible, no one who is familiar with the contents of that book can deny.

Now, let it be observed, that if Moses himself, through spiritual or Divine impressions, or any other means, had possessed any adequate idea of the immense periods which Geology proves to have elapsed between the commencement of the creation of our globe and the introduction of man upon its surface, it would have been impossible for him to have conveyed to the unenlightened minds of the semi-barbarians of his age and nation any adequate idea of the actual truth of the case; and any attempt to do this, would only have been productive of misapprehension, and would probably have generated some of the wildest forms of superstition. The probability is, however, that Moses himself had no adequate conception of the immensity of the actual periods of creation; and considering him, according to his claims, as a revelator merely of what was revealed to him, this admission may be made without affecting the truthfulness of the representations which were by him recorded as he himself received them.

These considerations strongly favor the belief, even *à priori*, that *any truthful* record of the natural history of creation made in those days, and especially for spiritual purposes, and

by a spiritual teacher, would have been couched in correspondential and spiritual language, by which the principles and spirit of the immense truths more interiorly involved, were brought into a diminished form of embodiment, and thus adapted to the rudimentary intellects to which they were addressed. Now, a “day” involves the *principle* of, and hence spiritually means, *one complete revolution*. But as each complete revolution, whether requiring a long or short period, only involves the *same* principle or spirit, why may not the great revolutions or cycles of operation which comprise the different periods in our earth’s physical history be, in spiritual language, called so many days?

That the word “day” is, in the first chapter of Genesis, used in this spiritual sense, without necessarily signifying any thing but the *principle* or *spirit* of a day (or a complete revolution of indefinite duration), is further evident from the manner in which the word is used in many other passages, not only by Moses, but by other sacred writers. Thus we read in Genesis ii. 4, 5, “These are the generations of the heavens and the earth when they were created, in THE DAY that the Lord God made the earth and the heavens, and every plant of the field,” etc. Here the six minor revolutions or days are comprised in one grand revolution or day, in the same way as several small circles or periods may be comprehended in one large one. The occurrence of the word “day” in this enlarged sense here, effectually precludes the right of every one to circumscribe its meaning necessarily to a period of twenty-four hours, as it occurs in the previous chapter in reference to the same subject.

Among the numerous other examples of a similar usage of the term “day,” which may be found in other portions of the sacred writings, let the following suffice for our present purpose: “And in that *day* there shall be a root of Jesse which

shall stand as an ensign of the people; to it shall the Gentiles seek: and his rest shall be glorious. And it shall come to pass in that DAY, that the Lord shall set His hand again a second time to recover the remnant of His people." (Isa. xl. 10, 11.) "And it shall come to pass in that DAY, that the mountains shall drop down new wine, and the hills shall flow with milk." (Joel iii. 18.) And Jesus says, "Abraham rejoiced to see my DAY; and he saw it, and was glad." (John viii. 56.) In neither of these passages is it possible to restrict the meaning of the word "day" to the period of the diurnal revolution of the earth. In *candor*, therefore, it must be acknowledged to be at least extremely probable that the word "day" is used in an equally enlarged and spiritual sense in the equally spiritual language of the first chapter of Genesis—especially as there are so many other facts and circumstances to corroborate such an interpretation.

Considering the six days of creation, then, as expressing six periods of very long duration, let us inquire whether the incidents and characteristics of these periods as described by Moses, bear any similarity to the incidents in the physical history of our globe, as revealed by geological science; and whether the Mosaic classification of periods and operations possesses that evidence of truthfulness which consists in a conformity to the law of the three-fold and seven-fold correspondential series.

In a previous general survey, ranging from the origin to the full maturity of our globe, we have seen that there were seven grand periods or stages in its development, as there are seven stages in the development and compartments in the constitution of all perfect systems. These periods, however, are not throughout exactly coincident with the periods described by Moses, inasmuch as the two descriptions embrace subjects somewhat different. In our general geological survey we have

endeavored to unfold the history of the developments of the earth *as* such, speaking of the vegetable and animal creations only incidentally; while the object of Moses appears to have been to speak of the successive organization of those outer forms and conditions with which man is immediately, either sensibly or spiritually, connected. Hence, Moses passes over the first two stages of creation, or the chaotic-gaseous and the nucleated stages, mentioned in our generalization, with the simple and comprehensive remark, that "In the beginning God created the heaven and the earth," and commences his main description at an epoch when the earth was probably in a state of imperfect superficial consolidation, and when much of the water of the ocean was still diffused, as vapor, in the thick and turbid atmosphere. The earth is hence described as at that period "without form and void"—that is, without arrangement, and vacant—"and darkness was upon the face of the deep." This "darkness" may be conceived to have been a natural consequence of the state of the atmosphere, which was probably still so thick as not to be easily distinguishable from the fluid portions of the earth, and from the water which rested upon its surface, in which condition it would, of course, have been completely impervious to the solar rays. The first Divine operation naturally required, therefore, was to produce changes in, and precipitations from, the aqueous portions of the atmosphere, such as would admit of the descent of some degree of solar light to the earth's surface. This operation is described by Moses, in saying, "The Spirit of God moved upon the face of the waters: and God said, Let there be light: and there was light." This, according to the account, constituted the work of the *first day*. And here it may be remarked, once for all, that the phrase, "the evening and the morning," which is used as the standing synonym of the different

“days” in this account, seems to stand simply for the beginning and close of the different periods—a use of language similar to that employed by us when we speak of the “eve” or “morn” of a “new era.”

It is said, that “God called the light Day, and the darkness He called Night.” In this passage, the words “day” and “night” are probably (though not *necessarily*) used in their ordinary acceptation, and point to a revolution of the earth on its axis, and a successive illumination of its sides by the sun. But owing to the thick atmospheric vapors which still continued to prevail to a great extent, the sun would doubtless have still been invisible to a spectator, could such have been placed upon the earth’s surface, and the amount of solar light that could have penetrated to the earth, was probably much less than is *now* received, even through the thickest and darkest clouds.

The next work seems to have consisted in producing further changes and regulations in the atmosphere, by which a more distinct line of demarcation was established between the waters intended to be suspended in the air, and those designed to preserve a more condensed form upon the earth’s surface. Moses, being obliged to make the most of the few words which his primitive and meager language afforded, describes this work by saying, “And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.” Hebraists tell us that the word “firmament” is a very improper rendering of the original word, which signifies simply an *expanse* or *space*; “Consequently,” (says Dr. Clarke) “that circumbient space or expansion, separating the clouds, which are in the higher regions of it, from the seas, etc., which are below it.” During the high temperature of the earth’s surface, which Geology proves to have prevailed in

those early times, there was probably every intermediate gradation between the most dense fluid and the most expanded vapor, the fluid and aeriform substances having no very marked line of distinction. While such was the case, the "circumambient space" supposed, could have had no *distinct* existence. A physical change which established the water, atmosphere, and aqueous vapor and clouds respectively *as such*, was of course the next necessary step in creation's progress; and this is all that appears to be alluded to in the passage before us as constituting the work of the second period or "day."

It was probably during the period comprised within this day, that the transition rocks beneath the coal measures were deposited. These contain the remains of animals and plants of low types, which are almost exclusively marine. But to the creation of these, Moses seems to make no allusion, which fact will not excite particular surprise, when we consider their comparative unimportance to the grand object which he had in view, which was simply to describe how the physical structure and conditions by which man is more *obviously* surrounded, came to exist.

The next work consisted in the partition of land and water (or the elevation of the former), and the development of terrestrial vegetation. "And God said, Let the waters under the heaven be gathered together, and let the dry land appear: and it was so. . . . And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth: and it was so." This was the work of the third great period or day, and manifests a surprising agreement with the events of the period of the great Coal Formation. The universal prevalence of almost exclusively *marine*, and the almost total

absence of *terrestrial*, fossils in the previously deposited rocks, proves that the ocean, up to this time, covered nearly the whole surface of the earth—which is in exact agreement with the Mosaic record, which implies that the partition of land and water was not made until that period. But large areas of land being then slightly elevated above the level of the waters, these, as another strong corroboration of the record, were covered by a profuse vegetation, which subsequently became converted into the immense beds of mineral coal now found to be so essential to the physical comfort and social progress of the human race.

The next work is spoken of by the sacred cosmogonist in the following terms: “And God said, Let there be lights in the firmament of heaven, to divide the day from the night; and let them be for signs and for seasons, and for days and years. And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so. And God made two great lights: the greater light to rule the day, and the lesser light to rule the night: he made the stars also.”

To superficial readers, this passage has seemed exceedingly paradoxical. The supposition that the sun, moon, and stars, had no existence until the comparative atom which forms this earth, had attained to the advanced stage of its development, previously described, is, with any interpretation of the word “day,” so unphilosophical and unreasonable as to utterly defy intelligent belief. Criticism, however, has shown that the translation of the passage before us, does injustice to the original, which does not necessarily mean that the heavenly bodies were not *created* until the fourth day. Professor Hitchcock, who is a learned theologian as well as geologist, says, upon this point: “If it be objected that, according to

Moses, the sun, moon, and stars were not created till the fourth day, it may be replied, that a more just interpretation of his language shows his meaning to be, not that the heavenly bodies were created on the fourth day, but that they were then first appointed to serve their present offices; and that they might have been in existence through countless ages."

Admitting such to be the true meaning of the passage, we find, again, that the record marvelously coincides with the indication of geological facts. In our previous survey of the natural history of the globe, we saw conclusive evidence that up to the close of the Coal Period, a nearly uniform temperature prevailed upon the surface of the earth in all latitudes, and that there could have been no distinction of warm and cold seasons. This is evident from the fact, that the rocks of that period, in all latitudes, contain the fossils of plants and animals analogous only to those which *now* flourish between the tropics. It is manifest that such a state of climate could not have been governed, in any great degree, by the rays of the sun, which vary so much as to their intensity, in the different latitudes; and hence, as remarked in our previous generalization, the sun's rays, during the Coal and previous periods, could not yet have penetrated the atmosphere, thick and heavy as it probably was, in such a way as would have rendered that luminary *visible* to a human spectator, had such an one been then placed upon the earth's surface. For the same reason the moon and stars must also, during those periods, have been invisible. Up to that period, therefore, the heavenly bodies could not have ruled the seasons, either as to their temperature or their distinct periodical revolutions; and all the light which could have descended from them to the earth must have been but dim and indistinct.

But in preceding pages it was shown, from the peculiar manner in which the impressions of frost-marks, the tracks of migratory birds, etc., occurred, during the geological formation immediately succeeding the Carboniferous Period (viz., the New Red Sandstone formation), that distinctions of seasons and climates must then clearly have existed, and hence that the sun must then have exerted his direct power upon the earth, which then, as now, varied in its intensity with the different positions assumed by the earth during its orbital revolution. An atmospheric condition which could thus have admitted of a direct descent of the solar rays, must also have rendered the moon and stars distinctly visible to such of the earth's tenants as had eyes to perceive them; and in these facts we have an abundant verification of the Mosaic record, as to the work of the *fourth day*. It consisted simply in those atmospheric clarifications by which the sun, moon, and stars were *appointed*, or allowed to exercise the office of, ruling the seasons, and dividing time into distinct periods.

The direct rays of the sun being thus admitted to the earth's surface, the latter consequently became habitable to higher orders of living creatures. Accordingly, the next stage of creation's progress is thus described: "And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth after their kind, and every winged fowl after his kind." Some of the "moving creatures" here spoken of as introduced into being, were probably wholly aquatic, and others were of the lower orders of air-breathing animals. It is remarkable that the remains of classes of animals here spoken of, first begin to appear in the New Red Sandstone strata, which is

the formation next above the carboniferous system, and which must have been succeeded, and measurably accompanied by the clarification of the atmosphere, spoken of as the work of the previous day. For it is in the Red Sandstone stratification that we find the footprints of frogs, tortoises, and *birds*. The latter were mainly, as Professor Hitchcock intimates, of the Grallæ family, or the family of *waders*, and were therefore, with the former, intimately connected with the water, as the Mosaic account implies. There can be but little doubt, therefore, that these birds were the very "fowl" of which Moses speaks.

The other part of the work of this period, according to the common translation, consisted in the creation of "*great whales*," etc. This, admitting our definition of the word "day," forms the only *apparent* discrepancy between geology and the sacred cosmogony; for whales do not appear to have existed before a somewhat advanced stage of the so-called Tertiary Formation, and a very long period after this time. But criticism resolves even this apparent discrepancy into a surprising harmony. Dr. Adam Clarke, who wrote before geology was much cultivated, and hence without the slightest idea of making out a harmony between its teachings and the declarations of Moses, remarks upon the expression in the passage before us: "Though this is generally understood by the different versions as signifying whales, yet the original must be understood, rather as a *general* than a *particular* term, comprising all great aquatic animals." Now the *marine saurians* were "great aquatic animals." These, with amphibious and terrestrial reptiles of enormous size, came in during the deposition of the New Red Sandstone, and extensively characterized the whole so-called Secondary Formation. Thus the Mosaic account of the work of the fifth

day, or grand period, is also admirably verified by geological facts.

Animals of the classes just described, both according to Geology and Moses, *preceded* the more perfect land animals, the mammalia, upon the stage of existence. The creation of these latter is said to have constituted the first part of the work of the following, being the sixth day, or period, which is thus spoken of: "And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so. And God made the beast of the earth, and the cattle after their kind," etc. The proof of the truth of this portion of the account is found in the remains of the mammalian quadrupeds of the Tertiary Period, in the more recent portions of which we have shown that there was an actual shading off of the animated tribes into the existing species. Moreover, the work of this day, or period, both according to Geology and Moses, was completed by the introduction of *Man* into being, as the grand ultimatum of all the creative efforts. Thence, so far as that great series of unfoldings was concerned, ensued a period of *rest*, and the present is that sabattic period.

The candid reader who has attentively followed me through this investigation, will bear witness that I have made no effort to explain away, or to change the *true* aspect of properly understood *facts*, in order to make out a correspondence between the teaching of science and those of Moses, but that I have labored to simply set forth the facts of the two revelations in their true aspect, leaving them to confirm or refute each other as they might. The coincidence between the two revelations, therefore, which, from generals to particulars, has here appeared so striking, is one for which no human collator is responsible, as it exists independently and unalterably in

the absolute facts of the case. All that is required to exhibit one revelation as a substantial transcript of the other, is an admission that the word "day" is used by Moses in the sense of an indefinite period—a sense in which it is used in scores of instances in the Bible, and a sense in which Moses *unquestionably* used it in Gen. ii. 4, where, in a more summary allusion to these same works of creation, he speaks of "THE DAY that the Lord God made the earth and the heavens."

As it is next to an impossibility to suppose that all these surprising coincidences could have been a mere work of chance, the conclusion is scarcely avoidable, that the account in the first chapter of Genesis, by whomsoever written, must have originated in a source of intelligence in which a general knowledge of the whole history of the creation was familiarly embraced.

It is quite certain, however, that Moses knew nothing, at least in an exterior way, about Geology; for of this science the whole human race has been ignorant until within the last century. I apprehend that nothing short of an hypothesis of a spiritual or Divine enlightenment, will be found adequate to explain the origin of this biblical and wonderfully accurate account of creation. Concerning the *laws* of such enlightenment, some explanations may be submitted in a future work.

I have deemed it useful to show, in this summary manner, the true bearings of geological science upon the initial revelation of the Bible, partly to correct a tendency which, strange to say, has been manifested in the modern *spiritual* mode of philosophizing, to treat lightly this and other revelations of the Bible, on account of the supposed "*unprogressed*" state of their writers; partly for the purpose of further illustrating the fact, that all true theology and other species of doctrine, whether found in the Bible or elsewhere, must conform to the

unavoidable deductions of scientific facts; and partly for the purpose of further unfolding that remarkable law of the three-fold and seven-fold correspondential series, which runs through all complete systems of truth, and of which the Mosaic generalization, properly understood, affords a conspicuous example.

That the seven-fold series of creative operations here spoken of by the sacred writer, exactly conforms to the natural and Divine law of sereal arrangement which we have heretofore unfolded, is obvious from the correspondences between the respective members of its Primary and Secondary Trinities, which will be perceived by an inspection of the following juxtaposed columns, and from the characteristics of the relations which each member of the series, from first to last, exhibits toward the others, which will be found to be the same which the same members in other serieses respectively bear toward their associates.

PRIMARY TRINITY.	SECONDARY TRINITY.
1st Day. Diffused and rudimental <i>Light</i> : (“ God said, Let there be light.”)	4th Day. Definite solar <i>Light</i> (by the sun becoming <i>visible</i> .)
2nd Day. Atmospheric and terrestrial distinctions, or more definite line of demarcation between condensed and vapory water. (“ Firmament.”)	5th Day. Higher and first important forms of oceanic, terrestrial, and atmospheric life. (“ Great whales” or aquatic monsters — saurians — and “ fowls.”)
3rd Day. Appearance of dry land; terrestrial vegetation.	6th Day. <i>Ultimate Tenants</i> of dry land. (Mammalian quadrupeds and Man.)
7th Day. REST, and Divine habitation in the Ultimate of the creative labor.	

Here the correspondence between the works of the *first* and *fourth* days, or periods, is perceptible at a glance, in that they consisted of *different degrees* of illumination of the earth's

surface. The correspondence between the works of the *second* and *fifth* days is obvious, but becomes still more marked by the addition of a few facts which Moses, in his brief survey, left out, but which are supplied by geological science. The *second* day, according to Moses, was characterized by the development of more marked distinctions between earth, water, and atmosphere, expressed by the creation of the "firmament," or the super-terrestrial expanse; while geology shows that the *fifth* day was characterized by the development of a *second degree* of similar distinctions, whereby alternations of climates and seasons, cold and heat, rains, winds, etc., supervened. Moreover, the *fifth* day, according to the biblical account, was characterized by the development of *rudimental land* and *aerial* animals; while, according to geology, the *second* day, after the incipient creation of light, was further occupied by the creation of the *rudimental marine* animals, or the radiata, articulata, mollusca, and fishes of the so-called Transition Formation. The creation of these, Moses passes over in silence, the reason of which may be conceived to consist in their comparative non-importance, and in the fact that in that unintellectual age, they were not, as facts in nature, sufficiently conspicuous to excite general inquiry as to their origin.

Further correspondences are also developed, by the aid of geological science, between the *third* and *sixth* days, but concerning these I need not particularize.

If the reader will now take the trouble to compare the members of this series of creations as described by Moses, with the members of any seven-fold series of creations or operations which we have heretofore described, or which we may describe hereafter, he will find that *each member is to its series what the same member of any other natural seven-fold series is to the*

*other members with which it is associated, and that between this and all other serieses there is the same correspondence as there is between any two octaves in music.* It is, be it remembered, upon the fact of this correspondence between the serieses, whether generally or minutely inspected, that we base our conclusion as to the unity of plan which runs through nature, pointing to an origin in the seven-fold and corresponding harmonies of the one Infinite God, who, from His own Essence, has projected, from His own Life animates, and, from His own Wisdom, directs, all things. It is in perfect harmony with this supposition of a Divine originative and controlling Power, that Moses, in the simple and untechnical language of his times, refers the work of each of the successive periods of creation to a *Divine agency*, and not to any force of development inhering in nature as *independent* of God.

I may add, that if there actually is a perfect conformity, from generals to particulars, between the principles involved in this seven-fold series of operations mentioned by Moses, and those involved in every other seven-fold natural or spiritual series, whether it be found in science or in the Bible, this fact must be considered as strongly confirming, not to say absolutely demonstrating, our conclusion that there is a *mighty law* here involved, and must go far to convince reasonable skeptics of the truth of, at least, those portions of the Biblical revelation which are found to clearly recognize that law. Yet, from a close inspection of the sacred writings, it will be found that this law is not only expressly recognized in numerous instances, but that it runs through the whole Divine plans of operation, in reference to the human race, of which the Bible gives an historical and prophetic reflex.

## CHAPTER XIV.

### THE MINERAL KINGDOM; OR, KINGDOM OF CHEMICAL FORMS.

FROM the terrestrial creation, as a whole, we proceed to a brief consideration of the general sub-creations which it involves. The first of these is the MINERAL KINGDOM.

The Mineral Kingdom, in its most enlarged sense, embraces all physical or terrestrial substances, with their various forms and compounds. Being thus general in its range, it is hence a comparatively *indefinite* Kingdom; and it is for this reason, I suppose, that I have experienced more embarrassment in reducing it to distinct classifications, than I have in respect to any other system of being or operation; and, after all, I can only pretend to a comparatively close approximation to correctness in my conclusions. Such an approximation, embracing the *most comprehensive* serial arrangement of physical substances, is that exhibited in the following table:

PRIMARY TRINITY.	SECONDARY TRINITY.
1. Primeval gaseous or mundane chaos.	4. Secondary gaseous or terrestrial atmosphere.
2. Igneous liquid.	5. Segregated, embracing rudimental crystalline forms, both solid and atmospheric.
3. Solidified amorphous.	6. Complete material arrangements and ultimate crystalline forms.
	7. Governing imponderables.

If the reader will carefully inspect this table, he will here find the same harmony of parts, the same correspondence between Primary and Secondary Trinities, the same order of relations, and the same principles of serial association, which he will find in all other natural seven-fold serieses heretofore exhibited, or hereafter to be exhibited.

But a still more specific classification of mineral or physical substances embraces all the simple elements, with their natural compound forms, as known to chemistry—as will be seen by the following table :

PRIMARY TRINITY.	SECONDARY TRINITY
1. Alkalizable and oxidizable <i>simples</i> (such as Potassium, sodium, iron, lead, hydrogen, etc.)	4. Lowest <i>combined</i> forms (such as alkalis, acids, oxides, sulphurets, carburets, etc.)
2. Acidizable <i>simples</i> (such as sulphur, phosphorus, carbon, etc.)	5. Binary compounds (such as sulphates, carbonates, etc.)
3. Flagrators, or alkalizers, acidifiers, and oxidizers (oxygen and chlorine).	6. Higher and ultimate compounds.
7. Pervading and enveloping electroid, or etheroid unit, as a homogeneous involution and evolution of all forms.	

But the Mineral Kingdom, as commonly contemplated, is circumscribed to the realm of crystallized forms, and the amorphous substances from which these immediately proceed. A theory of a septinary arrangement of the Mineral Kingdom, as viewed in this aspect, might be here submitted, but, from not having made crystallography a particular branch of study, I have not sufficient confidence in its conformity to nature, and will therefore omit it. Enough, however, has been said to show that the Mineral Kingdom, in its more general aspect, conforms to the seven-fold serial and corre-

spondential law seen to apply in other cases and nothing is here discovered to mar, but every thing illustrates, the harmony and unity of the great plan of creation. With these remarks, then, we will proceed to consider the Kingdom of forms immediately succeeding the mineral, in the order of development.

## CHAPTER XV.

### THE VEGETABLE KINGDOM.

THE seven-fold constitution of the Vegetable Kingdom as a whole, is illustrated by the seven progressive developments in the growth of a single perfect tree, which consist of 1. The root, or little appendages thrown out from the germ before the stem appears; 2. The simple stem; 3. The branches; 4. The leaves; 5. The flower-buds; 6. The blossoms; and 7. The fruit. The seven corresponding divisions of vegetable forms may be traced as follows:

The *first* and lowest of these consists simply of confused radical fibers, which do not necessarily appear above the surface of the earth. In constitution, this degree of vegetation is but little superior to the finest forms of crystallization, from which it differs principally in respect to its soft and succulent nature, the frequent curvilinear directions of its fibers, and the circular forms of their transverse sections. Of this lowest kind of vegetation, we have examples in the slimy accretions which occur upon the surfaces of rocks, logs, etc., submerged in water; and of which the fibrous underground mould which occurs in warm wet soil, impregnated with rapidly decomposing matter, constitutes the terrestrial representative.

The *second* division of vegetable forms is represented by plants that have a simple stem or shoot projecting above the earth, but no branches nor leaves. Of these, some of the simplest species of sea-weeds afford examples.

The *third* division consists of the *branching* forms of sea plants, of which the *fucoides* afford an example.

The *fourth* division consists of terrestrial herbacea, which are characterized by fully developed leaves. But the lower forms of this general division also embrace lichens, mosses, fungi, etc.

The *fifth* division consists of arborescent cryptogamia, or of those perennial plants in which the organs of fructification are concealed.

The *sixth* division consists of the arborescent monocotyledonous, or of those flowering trees whose seed has but one lobe ; and

The *seventh* division consists of the arborescent dicotyledonous, or of those flowering trees whose seeds have two lobes, and which are the most perfect forms of the vegetable kingdom.

This comprehensive classification, though new, is in accordance with the general order of succession in vegetable creations as indicated in fossilology, and is therefore natural. Each one of these divisions, of course, is subject to sub-classifications, which sometimes run parallel with each other ; but an *herbaceous* and *arborescent* plant which possess the same number of stamens, pistils, or cotyledons, evidently should not simply on that account, be placed in absolutely the *same* class or order.

That it may the more clearly be perceived that this classification conforms to the serial and correspondential law heretofore unfolded, we will reduce it to the following form :

PRIMARY TRINITY. ( <i>Marine forms.</i> )	SECONDARY TRINITY ( <i>Terrestrial forms.</i> )
1. Radical fiber.	4. Terrestrial herbacea ( <i>leafing.</i> )
2. Simple stem	5. Arborescent cryptogamia.
3. Branching.	6. Flowering monocotyledonous.
	7. Flowering dicotyledonous.

Here it is seen that the first member of the Primary Trinity, the radical fiber or the root principle, so to speak, of vegetation, has its counterpart and sub-correspondent in the first member of the Secondary Trinity, in the leafing plants—leaves being merely *aerial roots*. The second member of the Primary Trinity, consisting of plants with a simple stem, has its counterpart and sub-correspondent in the second member of the Secondary Trinity—the organs of fructification in the cryptogamous plants being connected with the leaves, and being mere shoots from them as from a root. Considering the cryptogamous plants in the Vegetable Kingdom as a whole, as corresponding to the flower-buds of a single tree, the third member of the Secondary Trinity, showing the *branchings* from the flower-buds, as from a stem, bears a certain correspondence to the third member of the Primary Trinity, embracing merely the *branching* forms of vegetation. The *seventh* member is not only of a more perfect organic structure, but it embraces all the more perfect *fruit-bearing* trees which afford nourishment to higher kingdoms, and therefore it may be considered as the crown of the whole Vegetable Kingdom. It is thus seen that the grand and natural divisions of the Vegetable World, conform to the septenary and ternary serial law; and its complete series will be found, on comparison, to correspond generally and particularly with all other complete series.

## CHAPTER XVI.

### THE ANIMAL KINGDOM.

THE Animal Kingdom follows as next in the order of progression, after the Vegetable Kingdom. Its divisions, in their regular order of ascension from lowest to highest, and also, generally speaking, in respect to their successive periods of development as shown by fossilology, are as follows :

PRIMARY TRINITY. ( <i>Marine forms.</i> )	SECONDARY TRINITY. ( <i>Terrestrial forms.</i> )
1. RADIATA (coral insects, crinoidians, star-fishes, medusæ, etc.)	4. REPTILES. (The lower forms of this division embrace also the terrestrial mollusca and articu- lata, such as snails, worms, in- sects, etc.)
2. ARTICULATA (sea-worms, trilobites, crabs, lobsters, etc.)	5. BIRDS.
3. VERTEBRATED FISHES.	6. MAMMALIA.
7. MAN as a <i>terrestrial</i> being.	

IN this table are represented three general divisions of marine forms, and three general divisions of terrestrial forms. The first division of marine forms is to its sphere of existence and to the divisions of marine forms which follow it, what the first division of terrestrial forms is to its sphere of existence, and to the divisions which follow it; and so also the one trine in its sphere corresponds to the other trine in its sphere, both in the complex and in the successive divisions of each.

It may be objected to the foregoing classification, that it

leaves out one important division of the animal kingdom, viz., the *Mollusca*. To this it may be replied, that the Mollusca, especially in its lower forms, seem, to be but a higher branch of the Radiata. Some of the lower or univalve shell-fish grow in clusters, or united compartments, almost as one animal, and in this essential characteristic are somewhat allied to the polipiaria, which comprises one class of the Radiata. This quality of growing in clusters, or connected compartments, is preserved even by some of the bivalves, such as muscles, oysters, etc. The detached bivalves, having locomotive powers, seem to be an ascension from these; and the still higher orders of mollusca, viz., the gastropoda and cephalopoda, seem to be but higher representations of the same system of creative design, which, as its lowest expression, evolved the polipiaria and crinoids.

I have personally observed that the whilk, which is among the higher orders of shell-fish, propagates through the medium of a zoophitic, or vegetable-like, form, with an attached stem, and containing leaf-like appendages or pods, in which the young are brought to foetal maturity. The Radiata and Mollusca, therefore, may be considered as comprehended in one general division of the Animal Kingdom, which division, however, should perhaps be designated by some term of more comprehensive significance.

It is thus seen, that the Animal Kingdom conforms to the same serial and correspondential law which we have seen running through all systems of création previously contemplated, and which we will hereafter perceive runs equally through still higher developments. And with this, as the highest system of material creation, our more *specific* classifications of the grand departments of the universe without us, is completed.

## CHAPTER XVII.

### THE WHOLE AND ITS PARTS

WE have thus ascended, through progressive stages of observation and induction, from the basis to the apex of the grand pyramid of outer creation. From the commanding position to which we have attained, therefore, it is proper to take a general survey of the ground over which we have passed, and to observe any general or particular facts which may thence present themselves, as bearing, favorably or otherwise, upon the conclusions to which we have been led, or as reflecting light upon still ulterior truths.

And first, a remark in reference to the method and order of our previous investigations: It will be remembered that we commenced with the observation of sensible facts, which lie upon the *exteriors* of Nature, and proceeded to trace them analytically to their elements and originative conditions, and those to *theirs*, until we arrived at the primeval and common chaotic Germ from which all things, by different ramifications, sprang. The nature and propriety of the *reverse* process which we thence pursued, with the naturalness of the *order* of successive results to which it led us, may be illustrated as follows:

The astronomer discerns in the distant heavens a faint whitish spot, which he calls a nebula. To the naked eye, it appears dim, indistinct, and undefined. He applies a telescope of moderate power, and the outlines of the same object are a

little more defined. With a still larger telescope, it appears still more definite; and so he goes on increasing his optical power, until the same object is resolved into myriads of minute stars, which appear like particles of diamond dust sprinkled upon the blue concave. By another increase of power, these stars are made to exhibit appearances of internal systematic arrangement. This is as far as the most powerful telescopes will go; but suppose that he had the ability to augment his optical power indefinitely; each of those stars, which at first appeared only as a shining point, may soon be made to glow as a resplendent sun, revealing a multitude of planets swimming in the sea of light by which it is surrounded. He now singles out one of those planetary globes as the special object of inspection; and as, by our imagined possibilities, the visual power is enhanced through other successive degrees, the forests, the fields, the streams, the trees, the flowers, and even the insects, which may exist upon the surface of that planet, or the animalcules which sport in its stagnant waters, would successively come into view. Now, be it remarked, that all these successive particularizations, even down to ultimate minutiae, are involved in that faint luminous spot, which, as a most comprehensive *general*, is first seen by the naked eye in the remote heavens.

Our process of synthetical investigation has been similar to that just supposed, we having the advantage of the actual presence and personal inspection of the minutiae included in the general subject of our thoughts. With a *mental* telescope we have penetrated, not into the distance of *space*, but into the *corresponding* distance of *time*, and beheld the universe in the aspect of one common nebulous mass. By following the natural history of this one general mass through its successive approximations to our own period, we have seen it

successively unfolding solar systems, geological developments, mineral kingdoms, animal kingdoms, and human races, with all things which they respectively include. It is to be observed that each of these successive particularizations is based upon, and was included in, the next preceding general, as all are based upon, and included in, the *all-comprehensive* General.

Moreover, that the *order* in which these particularizations, Kingdoms, or sub-creations have been brought under review, is not an order arbitrarily adopted for our own convenience, but clearly one observed by nature herself, is evident from the fact, that no two systems or Kingdoms, as arranged in our series of inquiries, can be transposed. This illustration of the relations of *generals* and *particulars* also clearly shows, that all truths are but involutions and evolutions of one fundamental truth—hence that all truths must bear certain relations and correspondences to each other, from their origins throughout their successive ramifications, even to their ultimates; and that no truth can be *fully* understood, except in the general and particular light of all others.

Moreover, if the serial order in which the grand divisions of nature, as a whole, have been brought under review, is according to the order of progressive development observed by nature herself, the same is generally true of the serial order of the seven sub-divisions which have been applied to each of these *grand* divisions. By a particular review of either of these classified sub-divisions, the reader will find, for example, that the first member of the series is naturally germinal, and that the seventh is naturally ultimate, to all the others; and that no two members of the series can be transposed without deranging the harmony of the whole series. And though we, of course, claim no absolute exemption from particular errors and imperfections in the classifications which have been sub-

mitted, it is nevertheless claimed that their manifest *general* conformity to nature, together with their ternary relations and correspondences, involved, after identically the same general method, in each seven-fold series, clearly reveals the presence of a grand structural or associative LAW which, in a corresponding manner, and in different degrees of development, governs the numbers, relations, and succession of parts, in every complete system of natural unfolding. Of this law, as before repeatedly intimated, the diatonic scale in music, with its seven notes, is the natural and oral exponent.

Having thus subjected the grand divisions of nature to review, and discovered the application of this principle of serial and correspondential classification to them all, let us now see whether the connected and successive creations thus brought under review, will naturally fall into the form of *one grand* System, in which our principles of serial arrangement will be exemplified. This may be best exhibited by the following table:

PRIMARY TRINITY.	SECONDARY TRINITY
( <i>Structural.</i> )	( <i>Organic.</i> )
1. Firmamental and sidereal universe.	4. System of chemical or comprehensive mineralogical arrangements.
2. Solar systems.	5. Vegetable kingdoms
3. Geological developments.	6. Animal kingdoms.
ULTIMATE.	
( <i>Intellectual.</i> )	
7. HUMAN RACES, as to their merely <i>terrestrial</i> constitutions, affections, and thoughts.	

Not only do we observe in this series a natural order of succession of parts, which will not admit of addition, retrenchment, or transposition, but we also observe the same ternary

relations and correspondences which we have seen are involved in all the series previously examined. Thus the first member of the series, which is rudimental-*structural*, corresponds to the *fourth* member, which is rudimental-organic;\* the second member is the transition-*structural*, and corresponds to the fifth (the Vegetable Kingdom), which is the transitional-organic; the third member is the (physically) perfect-*structural*, and corresponds to the sixth, which is the perfect organic. And the seventh is ultimate, exhibiting the perfection and united sublimation of all—in this respect corresponding to the seventh member of every other series, even as the first member in each series corresponds to the first member in all others; the second to the second, etc. The same principles of serial, septinary, and correspondential classification, thus apply equally to the generals and the particulars of nature, at least so far as such particulars have been brought under review.

But while the respective members of each seven-fold series, whether on a high or low scale, including the great series of all serieses, correspond to the same members, as numerically designated in all other serieses, these correspondences are of different degrees of directness and intimacy, according to numerical relations more complicated than those which have yet been brought into view. This, together with the manner in which general and particular serial correspondences are involved in one complete system, may be illustrated partially, but sufficiently for our present purpose, by a reference to the seven prismatic colors and their involved properties. It is found that, by causing each of the seven colors of decomposed

\* A crystal possesses a kind of molecular life, and has different parts, angles, and *poles*, which perform different functions, as shown by Reichenbach; it may therefore be considered as an *organism*, though of the lowest kind.

light to pass separately through a second prism, they may be still further decomposed, and form a secondary iris, in which each of the seven colors will again be visible. Now the first or *general* iris represents the great System of systems, considered as *one*, while each included iris represents one of the sub-systems involved in the latter, and which is also seven-fold. In other words, the grand seven-fold System of nature is composed of all its included and subordinate seven-fold systems, in the same way as the grand iris is composed of all the elements involved in its included irises, there being in either case a similar interdependence of parts; and hence there is the same unity in the System as a *whole*, that there is in each one of its analogous and component sub-systems. The grand System of nature, and each one of its sub-systems, then, correspond to each other in the same way as the grand iris, and each of its included sub-irises correspond to each other, according to their similar numerical designations. But while this is the case with the iris and its included sub-irises, it is evident that one of these latter, based, for example, upon the general *red* ray, would bear a *different degree* of correspondence to other seven-fold divisions of color, from one that is based generally upon the *yellow*, *blue*, or any other ray; and the same is true of the great System of nature and its sub-systems.

It was before shown that each seven-fold system of nature is accompanied, in its development and functional operations, by seven corresponding dynamic agents, and also seven corresponding laws. It may therefore be said that these dynamic agents and laws are also, either identically or by their natural representatives in different degrees of ascension, subject to the same *comprehensive* and *involved* classifications which we have just seen to apply to their corresponding

outer developments, as presented in the universal Fabric of Being and its parts. It would, indeed, be difficult to get a set of terms sufficiently comprehensive, and yet sufficiently definite, to apply equally to all systems and sub-systems involved in a universal classification; but if the reader will consider the terms we may employ as being themselves *correspondential*, and as expressive merely of *general principles*, he may find the general and particular systems of nature, in their three-fold relations of Dynamic Agents, Laws, and Developments, represented, with approximate truthfulness, in the following table:

DYNAMIC AGENTS.	LAWS.	DEVELOPMENTS.
1. Heat.	Expansion.	Chaos.
2. Light.	Attraction.	Nuclei.
3. Electricity.	Circulation.	Forms.
4. Organic, or odic heat.	Aggregation.	Incipient organism
5. Odic light.	Segregation.	Ascended organic forms.
6. Odic aura.	Sympathy.	Universal association.
7. Vitality.	Life.	Unity of totality.

Applying the *fundamental principles* of this classification, in different degrees, to the universal system, and to all its sub-systems, we have here a representation of the connection and harmonial relations of the Whole with the parts, and the parts with the Whole, of the Macrocosm or the universe without—corresponding to the connections and relations of the parts and the whole, of the Microcosm, or the universe within. Here, then, is erected, “without the noise of the hammer,” that universal Temple before spoken of, whose

timbers, hewn by God's own hand, consist of all those *facts* and *principles* which lie in the Realm of Being without us, and which mere *analytical* science necessarily views in everlasting isolation and confusion.

## CHAPTER XVIII.

### DUALISM OF PRODUCTIVE FORCES; OR, THE DIASTOLE AND SYSTOLE OF NATURE.

FOLLOWING link by link the descending chain of analogy, the conclusion was before arrived at, that in the beginning, the materials of the universe consisted of one diffuse, chaotic, or gaseous mass, without distinction of parts, or definite internal motions. Reasons were also submitted for believing that these material conditions were not eternal, but that they originated as emanations or projections of the more exterior essences of the Divine Personal Constitution. It was shown that, inasmuch as this whole mass of *physical* substance thus originated from Divine *spiritual* substance, so *physical Heat* in this substance originated from Divine *spiritual Heat*, which is Love, and that *physical Light* originated from Divine *spiritual Light*, which is Wisdom. It was also shown that Heat is accompanied with a force or law of Expansion; and that from Heat and Light combined, originated the force or law of Attraction or Contraction. As Divine Love and Wisdom (forming a Duality, or productive unity, consisting of positive or negative, or male and female Principles) constitute the spiritual Alpha and Omega of all generative forces, so it is apprehended that their physical counterparts, consisting of the forces of Expansion and Attraction, may be found to maintain an equally fundamental relation to all modifications of force, law, and operation, existing in the realm of created Being.

If we again glance at the systems and sub-systems of operation which nature presents, we will find abundant exemplifications of this fact. Thus, as the forces of Expansion and Contraction proceeded in their operations in the primeval chaotic mass, the particles which were by nature fitted to remain in an *aeriform* or *ethereal* state, and those which were naturally fitted for aggregation into *dense* forms, were separated. The latter class of particles, by a general assemblage, first formed the universal nucleus, and then, successively the nebulous rings, segregated masses, and stellar and planetary systems. The telescope now reveals these masses of condensible materials apparently in all stages of progress in the heavens, from the indefinitely formed and irresolvable nebula to the globular cluster of stars. This latter is the form peculiar to the highest possible degree of cosmical perfection, and, at the same time, the highest natural degree of cosmical *condensation*; and it may hence be supposed to be accompanied with the highest naturally attainable degree of levity and purity in the circumambient ether. But these states are ultimate achievements of the joint and constant action of the fundamental laws of EXPANSION and CONTRACTION.

We will find, on due consideration, that these same principles apply also to each creation *included* in the cosmical, whether it be organic or inorganic. Thus, in the Mineral World, the metallic ore that is now segregated into distinct veins, evidently must have originally existed in *diffusion* in the surrounding rock. The particles which *originally* occupied the present position of the mineral veins, must have been dispersed by a force of expansion (virtually or actually) which was precisely equivalent to the force of mutual attraction which brought the metalline particles together in their place. The same tendency of kindred and originally diffused mineral par-

ticles to draw together into the form of dense masses, is, perhaps, still more forcibly illustrated by the flint nodules found in beds of chalk, and which are generally of a more or less rounded form, evidently indicating an original state of *solution* in the surrounding mass, from which they have become *condensed*, as they are now found.

The first forms assumed by the *vegetable* materials that exist in the world, were also diffuse and chaotic. Such were the marine accretions of germinal slime, with their radical fibers, and subsequent efflorescent, simple, and microscopic stems. Several gradations of plants as they rise above these, are still of imperfect exterior forms, of a loose and succulent nature, and of an internal structure entirely cellular—indicating, as yet, but small progress in the condensive principle. In these, however, the whole Vegetable Kingdom as *one* creation, has its incipient and rudimental development. Further segregations and condensations of the vegetative elements are decidedly manifested in the subsequently formed *terrestrial* plants possessing a *vascular* tissue and ligneous fiber. But as creation proceeds, still higher forms, possessing more marked and widely diversified characteristics, are gradually developed, until the flowering and dicotyledonous plants of the present era came into being; and these show the closest possible connection of congenial, and the most perfect elimination of heterogeneal vegetable elements. Hence, they exhibit the ultimate degree of the *Condensive* and *Expansive* principle which can be naturally applied to the Vegetable Kingdom.

In the Animal Kingdom, including the human, the same principles are distinctly operative; and this, too, both with reference to the individual organism, and the whole collection of living beings. Professor Agassiz, who has investigated the subject of embryology perhaps more thoroughly than any

other man, tells us, that after the fecundation of the ovum of any animal, and its division into cells and layers, the organ of circulation proceeds to its incipient development from the *middle* layer of the germ. "First," the blood appears by a simple process of liquefaction of the cells. It can be seen under the microscope how the particles, or the cells of that layer, begin to loose at the outer margin, and to move between themselves, and to run in particular directions, and to combine into currents, and those currents to assume particular directions, *before there is a heart, and before there are blood-vessels*. It can be seen in every chicken under so low a magnifying power, that no one should lose the opportunity of seeing this wonderful sight. When blood corpuscles *move from the center toward the margin of the germ* [Expansion], the other cells, which become loose in the periphery of the germ, begin to *move toward the center* [Contraction]. In the beginning, there being no current circulating, the two collections of fluid meet, and finally become regular currents, by means of channels through which the blood runs for a regular *circulation*.\*

These fundamental, expansive, contractive, and circulatory motions are subsidiary to the development of a *fourth* operation, by which affinitized particles floating in the circulating menstruum are brought into conjunction, and deposited in the form of solid tissues. They are at first aggregated on all sides of the circulating channels, and form the blood-vessels, the ramifications of which (says Agassiz) are at first constantly

\* Agassiz's Lectures on Comparative Embryology. Here we have, in the words of one who wrote without any view to the distinctive philosophy of the present treatise, an illustration of the successive origins of the laws of Expansion, Contraction, and Circulation. Considering these facts and principles as equally applicable, on a large scale, to the great fecundated germ or *ovum* of the cosmical creation, it will illustrate perfectly the incipient process by a prolongation of which the universe received its present mature form.

changing. But one portion of the central vessel soon becomes enlarged, and assumes the form of a simple elongated sack. This, centralizing and expressing in itself the *previously diffused expansive* and *contractile* forces, performs a constant succession of diastolic and systolic motions, and constitutes the rudiment of the future heart.

Other processions from the blood-vessels form, in like manner, the rudiments of the alimentary canal, the liver, the lungs, the brain, etc. These, by a constant rejection (through the expansive or emanative force) of particles foreign to their respective and appropriate composition, and as constant an attraction and appropriation of the particles which they need, finally arrive at the full maturity of their complex structures, and together, form the complete living organism. The complete organism, therefore, manifests the perfection of elimination of unsuitable substances from each particular organ (which substances, therefore, go to form other organs to which they *are* suitable), and the perfection of condensation or aggregation in each organ of those substances which are suitable to its own composition.

The same remarks are, in *principle*, applicable to the whole animated creation as to *one grand Form*. Its first and lowest development, as shown by fossilology, consisted of polypiaria and other radiated forms. Now, the polypi of a coral reef may almost be considered as one extended animal, with little distinction of parts. The substances and functions of heart, stomach, lungs, brain, etc., seem to be interdiffused and confounded with each other in such a way that one portion of the structure is no more vital than another, and therefore, into however numerous or small fragments this animal substance may become divided or subdivided, each fragment, still chaotically embodying in itself *all* the principles of vitality and

organization, continues to live and grow as a distinct animal. It, therefore, corresponds to the primitive cellular structure of the impregnated ova of the higher animals. In the higher forms of the Radiata, the organs, with their functional operations, are perceptibly more distinct from each other. In the Articulata, there is still more definite association of the elements of organs into their distinct and appropriate forms; but this association is still so imperfect, that if the lobster or crab, for example, loses a claw, it eliminates from other portions of its system elements which form another claw—thus showing that the claw-principle, so to speak, previously existed undeveloped, in the other parts of the organism, by a draft upon which the recuperation is now produced. And so in each succeeding class in the ascending scale of animal creations, heart becomes more distinctly heart, brain becomes more distinctly brain, and all the other organs become correspondingly more distinct and highly developed, and more free from those particles which properly belong to other organs, until the perfection of living organization is attained in the perfected *human* form, which may be considered as the whole Animal Kingdom in the aggregate, with something more besides.

And so, reducing these specific subjects of contemplation to one comprehensive view, it may be said, that in the beginning the *material* elements of man, animal, vegetable, mineral, planet, sun, and firmament, existed in common interdiffusion in the great, universal, and undistinguishable mass of nebulous matter, in such a way that each part was lost in all other parts. The great mass, then, formed, as it were, one grand Polypus, or one grand ovum, corresponding to the ovum of an animal, and from it, after fecundation, and by means of a constant incubative and superior influence, the ultimate develop-

ment of the complex system in its mature form, was to arise. Materials in the primitive and lowest degree of refinement, draw together according to rudimental affinities, at the same time evolving their uncondensable elements, and thus form vast and indefinite nebulous aggregation, with their circumambient ether. Further evolutions and condensations, and consequent refinements, form, successively, firmaments, suns, planets, mineral aggregations, plants, animals, and finally the bodies of human beings—all of which, from first to last, have directly or indirectly collected and selected their materials from the great mass of *all* materials, even as the nodules of flint, before spoken of as embodied in the strata of chalk, have collected their component silicious particles from the mass of surrounding materials in which they must have been originally diffused!

The fact that, in the process of all formations, there is an expansion and evolution of uncondensable elements from the centers of their chaotic materials, as well as a clustering around central nuclei, of those particles capable of constituting the tangible structure with its various parts, more fully illustrates the doctrine heretofore advanced, that all forms and organisms, from stellar assemblages, individual suns, and planets, to crystals, vegetables, animals, and human beings, are surrounded by an *aromal counterpart* or "sphere." It will be borne in mind, that it is by the inter-action of these *aromal counter parts*, or spheres of different forms and organisms (and which are always expressive of the specific interior qualities of the latter), that these forms and organisms are brought into what may be called "*magnetic sympathy*" with each other; and it is by the combined *aromal spheres* of all organisms, forms, and systems, that the great inter-active nerve-aura of the universe. as *one* Body, is made up.

The expansions and emanations *from* centers perpetually prevalent throughout the whole domain of forms and organisms, may be considered as one general *diastole*; while the contractions and precipitations *upon* centers, likewise universally prevalent, may be considered as one general *systole*; and these motions, in their more progressed and periodically *alternating* forms, are expressed in the secular expansions and contractions of planetary orbits; in the oscillations of heavenly bodies between their aphelion and perihelion points; in the ebbing and flowing of tides; in the inspirations and expirations of plants; in the dilations and contractions of the human heart; and in the breathings and pulsations of microscopic forms of life, which sport in a single drop of water.

In attributing thus much to the laws of Expansion and Contraction (or Attraction), it is not by any means intended to supersede the septenary divisions of laws, as presented in preceding pages. Our object has rather been to show that these two *fundamental* laws, being, as it were, male and female in conjugal unity, are the parents and grandparents of all other laws. Thus it is from a combination of Expansive and Contractive movements that the law of *Circulation* immediately ensues in every portion of the creation, even as the same ensues in the animal and human systems, from the expansive and contractile motions of the heart: and as particles are thus made to flow throughout each system, and are placed in general intercommunication with other particles, there is occasion given to the operation of the *fourth* law, by which mutually affinitized particles, whether in organic or inorganic creations, unite together and form the tissues of the permanent physical structure. Thence, after performing their appropriate offices, and undergoing specific refinements, they are

taken up and re-deposited in higher and more complex masses or tissues, or excreted entirely from the system, according to the fifth law—the law of *segregation*—the same being also applicable, in different degrees, to each creation; then by mutual impartations of essences and forces between these masses or tissues, as necessary parts or organs of the system, a *sixth* law is developed—the law of universal sympathy and harmonial reciprocation. Finally, all these laws and operations, harmoniously combined, give occasion to the normal manifestation of the *seventh* and highest law—the law governing the functions of the complex unity, and in which the principles of Love and Wisdom, Heat and Light, Expansion and Attraction, with all their modifications and subordinates, are embraced in unitary form.

As these Expansive and Attractive operations are dependent upon physical Heat and Light, and these are ultimately dependent for their generation upon *spiritual* Heat and Light, which are conditions of Divine Love and Wisdom, so it follows that Divine Love and Wisdom pervade nature co-extensively with Expansive and Attractive forces, and are the fundamental and essential constituents of the life-principle which inheres in every form of being. Things live, therefore, only in proportion to the degree in which they are recipients of the essences and forms of Divine Love and Wisdom; and without these, all things would be dead.

## CHAPTER XIX.

### CIRCLES.

It was before shown that the constant Expansive and Contractive forces, particularly illustrated in the previous chapter, call into requisition the law of *Circulation*, which gives *form* to the motion of particles impelled by the previous forces. By circulation is meant a proceeding from a given point or condition, and finally returning to the same, whether the line of progression described by the movement is mathematically that of an exact circle or not; as is illustrated by the flowing of blood from the heart, through various channels back again to the heart.

But it is here to be particularly observed that the blood, in passing from the heart, through various parts of the system back again to the heart, deposits certain portions of its elements in various fleshy and osseous tissues along its path. This example, taken from the functional operations of the *Microcosm*, or little universe, serves as a sure index of similar operations which occur in the various departments of the *Macrocosm*, or great universe, and leads to the remark, that all regularly circulating materials, whether in the human, the animal, the vegetable, the mineral, the geognostic, or the astronomical department of creation, impart certain of their elements to the ambient spaces through which they pass. It is by the aggregation of such imparted elements that all regularly developed forms in nature have their being; and as

it was heretofore shown that all natural movements and developments observe a regular serial order of successive gradations, it follows, from the law of Circulation, that this serial order, as applicable to each system or degree of nature, must exemplify the *circle*. This idea of the universality of the circular constitution and movements of things, shall now be more particularly illustrated by facts.

Extending our observations to the heavenly bodies, we see *circular motion* everywhere prevailing. Satellites move around planets, planets around suns, suns around still greater suns, and an extension of the analogical chain renders it, as before shown, extremely probable, not to say certain, that all secondary bodies in universal space, revolve in common, around one grand primitive Center and Source of attraction. If this be the case, then, whatever particular movements the secondary bodies may have assumed from the development of *forms* of internal forces peculiar to themselves, these movements are subordinate to the great material Source of movement, and the forces by which they occur are only reproductions or ascensions, in specific and modified forms, of the forces which primarily appertain to *it*.

But as the forces producing these primitive rotatory and orbital motions in the universe, are the final source of all those diversified ramifications of circular movement, which are manifested by subordinate systems, suns, and planets, so the orbital and rotatory motions of planets are the more immediate parents and dependencies of still more diversified and minute systems of circular development. From the orbital motion of the earth, for instance (and the fact also applies to other planets), results a continually repeated *circle* of *thermal changes*, which mark the various seasons of the year. These give rise to the various annual series of vegetable and other

developments. In the genial heat of spring, the seed that has sunk into the moist vegetable mould, expands and puts forth successively the stem, the branches, the leaves, the flower-buds, the flowers, and the fruit containing seed of the same species of that from which the plant sprang. Then, as the frosts of winter begin again to prevail, the life of the plant becomes extinct; its ripened seeds are scattered upon the ground, to become the progenitors of other plants of the same kind, and the materials of the plant also sink to the earth to replenish the vegetable mould from which they sprang. Thus the same general condition is again brought about with that from which the first plant sprang; and the germination, growth, maturity, and decay of the plant, with the scattering of its seed upon the earth, exemplifies a complete *circle*. So with the putting forth of the foliage, the development of the blossoms and fruit, and the final hibernation of *arborescent* vegetation.

Coincident, also, with the changes of the seasons, are the periodical awakenings of certain animal instincts, and also the occurrence of certain conditions in the human, physical, and mental economy. These changes, occurring, as they do, in regular serial succession, and always returning to the point from which they started, exemplify, also, the Circle.

And so, from the alternations of day and night, which, with their successive hours and moments, mark a diurnal circle of physical changes, still more minute circles of change ensue, in the economy of organic beings. Such are the circles of wakefulness and sleep; of activity and repose; of organic waste and recuperation, with all their intermediate and transitional stages, whether we apply the remark to the vegetable, the animal, or the human creation. And it may even be said that every passage, from one degree or stage to

another, in the progress of any complete circle of unfoldings, involves a circle or system of a minuter kind, until we get down to the physiological functions of the organism of an ephemeron, to the circuit of blood and organic deposits in the system of an anamalcule, or to the orbital and axial revolutions of an atom.

It may also be said that the progression from the origin to the dissolution of any system, or to its passage into another form, involves the circle; and this is equally true of the universe as a whole, of its included stellar and solar systems and individual worlds, and of the further ramifications of creation, constituting the mineral, vegetable, animal, and human kingdoms, together with their various genera, species, and individual forms, respectively.

The minutest of these circles of movement and development, are included in, and are, in some sense, dependent upon, the greater, and those are in like manner included in and dependent upon, still greater (which, therefore, form circles of circles), and all are included in the *great* Circle which comprehends all movements and developments in the universe, from its periphery to its center, from the whole unimaginable vortex of being to a single atom of matter, and from the very origin to the very end of all material things.

The close of each comprehensive circle of operations marks an era, not only in its own history, but also in the history of its included circles, which are, to some extent, dependent upon *its* state for their own specific states. For illustration, the earth, during a single orbital revolution, makes, to sense, three hundred and sixty-five revolutions on its own axis, occasioning the same number of repetitions of the phenomena of **day and night**. But these days and nights, or circles of diur-

nal change, vary as to their length, temperature, etc., with the different stages of progress which are attained in the *annual* circle of revolution. But, if the reasonings of Maedler and others are to be relied upon, the whole Solar System, including the earth, is sweeping round a grand common center, which is so distant, that a single orbital revolution can not probably be accomplished in a less period than eighteen millions of years. As such a revolution will constitute the *great year* of the solar system, it is extremely probable that the progress of this revolution will be marked with changes in ethereal elements which affect climate and the various circles of organic creation upon our globe, in a manner analogous to the influence of the orbital revolution of the earth, upon the length and other characteristics of the days and nights, and thence, also, upon the annual developments in the vegetable and animal kingdoms. This gradual alteration of the position of the Solar System in the sidereal spaces, and the elemental changes consequent thereupon, may of itself be sufficient in the course of time to work an entire change in the character of organic life upon our globe; and still mightier changes in still mightier periods of time, may be wrought in the whole aspect of creation, physical and moral, by those inconceivably more stupendous revolutions to which all of these are subordinate.\* It is by the combined influences of all other circles of movement and creation, that each particular circle is precisely *what it is*; and whenever there is any change in the functional operations of any portion of the grand system of Being, or of any of its sub-systems, physical, mental, or moral, there is, according to

\* Professor Nichol has suggested the idea that the marked changes of climate, and hence of the organic and other productions of the earth, which occurred during the geological periods, may not have been entirely disconnected with the movements of the solar system through the stellar spaces. (See Nichol's "Architecture of the Heavens.")

the law of sympathy, necessarily some co-related change in all circles of operation included in this, however inappreciable to human conceptions that change may be.

Thus do we see that the great system of universal Nature, from its most comprehensive outlines as a whole, down to its infinitesimal parts, is one compact system of co-related "wheels within wheels," which play harmoniously together, as the various and mutually dependent parts of a most sublime and magnificent Machine! It is a machine, however, which, notwithstanding its perfection *as a machine*, is neither absolutely self-propelling, nor can it evolve its appropriate fabrics, and thus fulfill the designs of its Maker, without the constant and intelligent superintendence of a superior Power—even the Power from which *it* received *its* origin—as has before been intimated, and will be more particularly illustrated hereafter.

The general and particular *numbers* of progressive gradations which extend from beginnings to endings, and thus constitute each known circle of developments, or each known form of a perfect series, that is inwoven with all others in the texture of nature, have heretofore been maintained to be THREE and SEVEN. The reasons for considering these as the numbers of perfection applicable to every complete system of being, have been extensively illustrated in foregoing pages, and need not be repeated in this place.

## CHAPTER XX.

### THE DOCTRINE OF DEGREES.

THE exposition of the *serial* and *circular* order of nature's operations and constituent parts, as given in the foregoing chapter, prepares us for the more full comprehension of another doctrine, which is of no less importance than the previous one. I refer to the truth that each complete system of creation and operation, from greatest to smallest, together with the whole realm of being as *one* System, is resolvable into distinct *Degrees*, associated with each other according to a certain definite order—and that each complete System as one *comprehensive* Degree, is connected, after the same general order, with the one immediately beneath, and that immediately above it, in the general scale. This doctrine of Degrees has been constantly intimated in foregoing discussions; but its importance as a general guide to truth, demands for it a more direct and particular illustration, which shall now be given.

The writer's theory of Degrees was formed mainly from a direct study of nature, and with but little immediate aid from human suggestions beyond what was contained in the mere word "Degrees," as applied to nature's unfoldings; but when on the point of placing the present work, containing a chapter on this subject, in the hands of the printers, my attention was called by a friend to the teachings of EMANUEL SWEDENBORG on the same subject. So far as I understand what that celebrated philosopher has written upon this theme, I am delighted

in being able to recognize it not only as entirely true, but highly interesting and important ; at the same time that I find in it a confirmation of the *principles* involved in my previous thoughts upon the same subject. This, however, is said without the intention to intimate any opinion as to the truthfulness or untruthfulness of the general writings of Swedenborg, concerning which, indeed, I know comparatively little.

The doctrine of Swedenborg concerning Degrees, is essentially similar to that which I had conceived, the main difference, aside from his peculiar terminology, consisting in his exclusive use of the *ternary* division, whereas I, as a general rule, use the *septinary*, as *involving* the ternary. In Swedenborg's writings, however, I find many features and applications of this doctrine of which I had not before conceived ; while, in my own previously embodied thoughts upon this subject, there were ideas which I have *not yet* found in Swedenborg. I am, therefore, induced to so far modify the chapter I had written on this subject, as to give a general reflex of what is essential and fundamental in both forms of the conception, in doing which I shall so far change my own previously adopted terminology, as to avoid a confounding of ideas essentially different, as originating with the Swedish philosopher and myself.

Swedenborg makes Degrees of two kinds, viz., continuous Degrees, or Degrees of latitude, and discreet Degrees, or Degrees of altitude. Continuous Degrees, or Degrees of latitude, are described as being "like degrees from light to shade, from heat to cold, from hard to soft, from gross to subtle, etc." But Discreet Degrees are described as "entirely different" from these, in that "they are in the relation of prior, posterior, and postreme, or of end, cause, and effect. They are called Discreet Degrees," continues the writer, "because the prior is

by itself, the posterior by itself, and the postreme by itself; but still, taken together, they make a one."

Further illustrations of the same subject are given as follows: "It is well known by ocular experience, that each muscle in the human body consists of very minute fibers, and that these fasciculated, constitute those larger ones, called moving fibers, and that bundles of these produce the compound which is called a muscle. It is the same with the nerves: very small nervous fibers are put together into larger ones, which appear like filaments, and by a collection of such filaments the nerve is produced. It is also the same in the other compagnations, confasciculations, and collections of which the organs and viscera consist; for these are compounds of fibers and vessels, variously fashioned by similar degrees. The case is the same also with all and every thing of the Vegetable Kingdom, and with all and every thing of the Mineral Kingdom; in wood there is a compagination of filaments in three-fold order; in metals and stones there is a conglobation of parts also in three-fold order. These considerations show the nature of Discreet Degrees, namely, that one is formed from another, and by means of the second, a third, or composite; and that each Degree is discreet from another."

Inasmuch as the second Degree in any trine, proceeds from the first, and the third from the second, it was also taught by Swedenborg, that "the first Degree is all in all in the subsequent degrees;" and that "the ultimate Degree is the complex, continent, and basis, of the prior Degrees;" by which latter phrase I understand to be meant, that in the ultimate Degree, all the Degrees receive permanent, potential, and utilized embodiment.

This doctrine of Degrees is extended by Swedenborg to every department of existence, whether in the physical, moral,

civil, psychological or spiritual worlds, and even to the infinite Divine Constitution itself, of which they are the outbirths and correspondences. He, indeed, maintains that all and every thing in each form of being, from greatest to smallest, of which triunity may be predicated, contains Degrees both continuous and discreet. He maintains that the knowledge of Discreet Degrees is of the greatest philosophical importance, and that one who adequately possesses it, will thereby be enabled to see causes without the previous indications of their effects, and may even form accurate conclusions respecting things invisible, to which the same doctrine of degrees must necessarily apply.\*

Such, then, is the doctrine of Degrees as taught by Swedenborg. But, though it is true, so far as it goes, I am not aware that it even claims to be perfect in such a sense as not to admit into its composition some additional considerations. I do not suppose that Swedenborg himself meant to convey the idea that each one of his Discreet Degrees was itself an absolutely *simple* unity; and it is highly probable that if he had been questioned directly on the subject, he would have admitted that each one of these was itself of a three-fold constitution, especially as he has apparently carried the doctrine of the trine down even to infinitesimals.

Let Swedenborg's first Discreet Degree, then, stand for what, in the septenary classifications given in the preceding pages, has been called the "Primary Trinity;" let his second Degree stand for our "Secondary Trinity;" and let his third, or ultimate Degree, which he says is the "complex, continent, and basis of the prior degrees," stand for our *seventh* division,

\* See Swedenborg's "Divine Love and Divine Wisdom," from No. 179 to 241.

which we have constantly, though in other terms, represented as the complex, continent, and basis of all previous divisions—and this view without the slightest violence to any essential doctrine of Swedenborg, will bring the theory of Degrees precisely into the form in which I had conceived it. I believe that while Swedenborg himself maintained that triunity was predicable of all completeness, he also distinctly taught that the number *seven* was the common number of completeness. Consistently with this, then, it would seem that he could not avoid admitting that the septinity in some way involved the trine—of the truth of which idea a very *small* portion of the existing evidence is spread through the foregoing pages.

The doctrine of Degrees of altitude, then, in the light of principles heretofore established, and which doubtless Swedenborg himself would have admitted, may be presented in the following modified form :

Let each component gradation in the seven-fold series be called an *Elemental* Degree.

Let each Trinity of Elemental Degrees (the Primary and Secondary Trinities, as distinguished in foregoing pages) be called a *Discreet* Degree ; and

Let each seven-fold series, as a whole, be called a *Complete* Degree. We have thus Elemental Degrees, Discreet Degrees, and Complete Degrees.

For example, let the Mineral Kingdom be considered as one *Complete* Degree, the Vegetable Kingdom as another, and the Animal Kingdom as another ; while each Trinity of developments in each of those Kingdoms, as before represented, is considered as a *Discreet* Degree, and each member of each of those Trinities is considered as an *Elemental* Degree ; and the whole theory of Degrees of altitude will

appear in a general and particular form of embodiment that will be intelligible to most minds.

Each *Complete* Degree, viewed in this light, will appear connected with the contiguous *Complete* Degree, in the same way as each *Discreet* Degree is connected with its contiguous *Discreet* Degree, and as each *Elemental* Degree is connected with its contiguous *Elemental* Degree; so that Nature, as a whole, will exhibit the same ascending order of *Complete* Degrees (or systems) that is exhibited by the *Elemental* Degrees composing any seven-fold series. I can not avoid the thought that this classification of Degrees, duly understood, would present a new and important aid to a proper comprehension of the *ensemble*, as well as the *particulars* of nature, with her forces, modes of operation, and mutual relations of parts.

In view of the *circular* constitution and order of procession of each system of being, as illustrated in the chapter immediately preceding this, we are prepared to further remark, that Degrees of altitude of each of these kinds, result from a *spiral uprising*, so to speak, of the circle of development, by which the first *Elemental* Degree ascends to the altitude of the second, the second to the third, and so on; or by which the first *Discreet* Degree progressively rises to the altitude of the second, and the second to the third, and by which one whole *circle* of developments, in being completed, thus forming a *Complete* Degree, passes out into another and *higher circle* or *Complete* Degree. For example, one octave in music, which may be considered as a series of *Elemental* Degrees of sound, forms one *Complete* Degree of sound, and each other octave forms another *Complete* Degree, superior or inferior to it, according as it is above or below it; and a similar remark is applicable to the Mineral, Vegetable, and Animal Kingdoms,

before referred to as contiguous and *Complete* Degrees of creation, the higher of which arise, in some sense of the term "progression," out of the lower.

Of these latter Kingdoms it may be said, that they are all in *accord* with each other, as different octaves in music having the same key-note. In other words, each Complete Degree, Circle, or Kingdom, seems to be, member by member, an exact counterpart of the others, on a higher or lower scale; and this may be said of many other Complete Degrees. A Complete Degree, however, may take its rise any where along the circle of an antecedent Degree, in the same way as *any* note in an octave may be taken as the initial note of another and independent octave. For example, it was shown in preceding pages, that the seven-fold series of outer terrestrial developments, as mentioned by *Moses*, commenced upon the basis of the *third* development in the comprehensive geognostic series, which had been before described; and many more examples of a similar kind might be given were it necessary. But however the key-notes of different octaves (or Complete Degrees) of natural developments may differ, the octaves themselves all contain the same number of parts, which have similar relations to each other, and occur in the same order of succession; and therefore all are governed by the same serial and gradational law.

The doctrine of Degrees might receive a much more extended illustration and application than is exhibited above, but as our object should first be to establish *general principles*, the foregoing must suffice for the present. Owing to its novelty and somewhat abstruse nature, this doctrine may, to the ordinary reader, be at first somewhat difficult of full comprehension; but I can confidently assure him, that if, by the little perseverance of mental effort that will

be required, he succeeds in mastering it, he will find that it will greatly simplify and facilitate investigation in every other department of thought, whether in physics, psychology, theology, or as relating to any of their numerous cognate subjects.

## CHAPTER XXI.

### THE DOCTRINE OF CORRESPONDENCES.

As a natural sequence of the doctrines of Serial Circles, and of Degrees, as presented in the foregoing pages, arises that doctrine of CORRESPONDENCES which has been the guide to so many important conclusions set forth in this work. All perfect Series, Circles, or complete Degrees involved in the system of creation, must, of course, proceed from the same final Cause; and as they must thus correspond to the common final Cause, they must hence, in some way, correspond to each other. Moreover, every complete Degree in the character of a Circle, necessarily involves the same principles of constitution with all other Circles, and therefore must, in the *general* sense, correspond to all others, whether they be on a higher or lower scale. And as each circle consists of the same number of parts, which occur in the same order of sequence and relations, so each *part* of any circle corresponds, in the general sense, to the similarly disposed *parts* of all other circles. Thus it is, that if we acquaint ourselves thoroughly with the characteristics and interior principles of any complete circle or Degree in nature, we may, in a general way, make it the exponent of all other circles or complete Degrees. But in order to pursue this correspondential method of investigation to the best advantage, and with the most accurate results in the way of eliciting truth, we must, of course, have a due regard to the relative positions in the whole grand scale or

Circle of creation, occupied by the two circles which are the special terms of comparison, and to the peculiarities of quality and development incident to their respective positions.

The comparison exhibited in foregoing pages, between Primary and Secondary Trinities, or Discreet Degrees, as they were subsequently called, shows that there exists also a general and particular correspondence between them; but this correspondence is not so perfect as that which exists, generally and particularly, between the *Complete Degrees* or *Octaves* of natural unfolding.

It may, moreover, be said that any two creations, forms, or developments, which involve the *same principles* of constitution and operation, correspond to each other, however various may be the specific departments of existence in which they may be found. An identity of *principles*, indeed, is the essential basis of correspondence between higher and lower, or between ulterior and prior developments; and in the light of this fact, all forms and developments in the material and exterior world may be seen to correspond even to things of a *spiritual* nature; and things of a spiritual nature may, on the other hand, be seen to correspond to them. Indeed, if the science of Correspondences were duly developed, nature would appear as if invested with ten thousand tongues, which would continually be vocal with instruction. Every kingdom and form; every shrub and tree; every leaf and flower; every insect, beast, and bird; nay, every point of compass and angle of direction from any given point, and every curve, circle, spiral, or other mathematical figure, would speak a distinct language, and discourse of a separate truth; and the whole grand system of Nature as One, would continually discourse of its Infinite Divine Author, of whose creative Wisdom and Love it is but an outer expression and correspondent!

The doctrines of Series, Circles, Degrees, and correspondences, therefore, if properly developed and understood, would be the most efficient of all possible aids to the discovery of that grand system of general truth whose millions of parts are all harmonious, mutually explanatory, and corroborative, of each other. Let the leading minds of the age, then, bestow due attention upon the development of these principles of investigation; and in proportion as they are comprehended and applied in the world, the conflicts of the various parties in philosophy, theology, and even politics, will be swallowed up in one grand and harmonious system of thought, the credentials of whose truthfulness will be borne upon its very face, to be seen and read of all men. With the aid of such a system, properly unfolded, even the child might set out on its course of progression, with the *unadulterated* truth, and even the *whole* truth—which, though at first in a diminished form of representation, and involved in comprehensive generals, would, as the mind expanded, gradually magnify, and regularly and harmoniously unfold into particulars, for ever and ever. The harmony of thoughts thus brought about in the world, would, in proportion to its degree, be necessarily accompanied with a more intimate and spiritual conjunction with the Divine Source of all harmony, from the perpetual inflowings of whose Love and Wisdom, all the movements of human society, in common with the movements of those planetary and celestial spheres which now, without reservation, own the Divine sway, would proceed without a jar, or a single note of discord. This would be the long-looked for, and long-prayed for, reign of God upon earth!

## CHAPTER XXII.

### THE DOCTRINE OF PROGRESSIVE DEVELOPMENT.

ONE important object of this treatise, as doubtless has been observed, is to exhibit the connection of nature with her interior, producing Cause, and pervading Life-force. The reader who has attentively followed us in the previous discussions having a bearing upon this subject, has observed that our philosophy has uniformly tended to the idea of an intelligent, voluntative DIVINE AGENCY, as concerned in the origin and government of the outer system of things. But as our object should be to discover truth for the sake of truth, irrespective of its character or consequences, it would be manifestly inconsistent to ignore any facts or manifest principles of nature which have been thought by any party in philosophy to militate against conclusions such as those exhibited in our previous reasonings. As the next natural step beyond the foregoing investigations, therefore, we proceed to briefly notice the merits of a pending controversy, embracing, substantially, the questions, *whether the system of nature is the result of the operation of an inherent force or law of progressive development? or whether it is the result of a series of special and independent exertions of Divine Power, with little or no regard to law?* Though these questions suggest two opposite views, neither of which we are able to adopt without some important qualifications, it is proper that they should here be exhibited, together with the main features of the discussions

they have engendered, in the form in which they have extensively occupied the minds of philosophers and theologians of late years; and it may be, that in the light developed by their conflicting affirmative and negative arguments, a *true modified* theory will be brought into view.

A few years ago there was published an anonymous work, entitled, "VESTIGES OF THE NATURAL HISTORY OF CREATION," in which the idea that creation is the natural result of the operation of certain fixed laws, is ingeniously maintained. Though the author of that work does not reject the idea of a *remote*, he rejects that of an *immediate*, Divine Agency, as concerned in the generation and government of the outer forms of nature; and as his positions, *viewed in one light*, present, unintentionally, perhaps, on his part, a condensed synopsis of the whole groundwork of the pantheistic and materialistic philosophy, it is proper that they should here be summarily exhibited.

Assuming the correctness of the nebular theory of cosmical creations (after epitomizing, in a cogent and felicitous manner, the prominent points of evidence on which this theory is based), the author urges this theory as exhibiting a succession of *law-governed changes*, by which primordial matter was resolved into stellar systems, solar systems, and planets, with all their present general and particular movements in space. The facts in Chemistry and Geology are then considered, as showing that the present structure and physical arrangements of our globe (together with all similar globes in space) originated, probably, from laws governing solid, fluid, and vaporiform substances.

The progressive and law-determined development, also, of *organic* beings, both in the vegetable and animal kingdoms,

with man at their head, is then maintained by arguments, of the more important of which, the following is a brief synopsis.

1. "We have seen powerful evidence," says the author, "that the construction of this globe and its associates, and inferentially that of all the other globes of space, was the result, not of any immediate or personal exertion on the part of the Deity, but of natural laws, which are the expressions of his will. What is to hinder our supposing that the organic creation is also the result of natural laws, which are in like manner an expression of his will? More than this, the fact of cosmical arrangements being the effect of natural law, is a powerful argument for the organic arrangements being so likewise; for how can we suppose that the august Being who brought all these countless worlds into form by the simple establishment of a natural principle, flowing from his mind, was to interfere personally and specially on every occasion when a new shell-fish or reptile was to be introduced into existence on *one* of these worlds?" The writer further argues that, "to a reasonable mind, the Divine attributes must appear, not diminished or reduced in any way, but infinitely exalted, by supposing a creation by law."

2. The writer submits that the progressive succession of organic beings, as revealed in fossilcology, by which the lower and more simple forms, as a general rule, precede the higher and more complex, is in perfect harmony with the hypothesis of development by *law*; whereas, on the supposition of special Divine exertions, it might be supposed that there would have been many specialities of Divine creation, as essentially modifying the existing order of things.

3. Particular facts and analogies, as connected with the organic kingdoms, seem to hint that forces are lodged in nature

from which the simpler species in the vegetable and animal world may, under certain circumstances, derive their origin. Reference is made to the vegetable-like forms of frost on the window, and to the shrub-like form of crystallization known to chemistry as the *Arbor Dianæ*—also to the vegetable-like forms of some of the ordinary appearances of the electric fluid; and from these phenomena the writer argues the probability that electricity is largely concerned in the origination and growth, not only of crystals, but of plants, which assume forms according to specific generative and other conditions. Moreover, the growth of certain plants for which no seeds were sown, and in situations where it is next to impossible that such seeds could have existed, is thought to add probability to the theory of a possible spontaneous germination of vegetable forms without the ordinary seminal mode of origination—provided such changes are suddenly made in the ingredients and conditions of a soil as are favorable to the development of organic from inorganic forms. The author also mentions the singular facts that oats cropped down so as to prolong the period of their growth, have been known to progress, by regular transmutation, into the form of rye; and that the cabbage is known to be, in its native state, a trailing sea-side plant, totally different from the plant in its cultivated form. These latter facts, with others, are thought to strongly support the theory of a *transmutation* of species from lower to higher forms.

4. The formation of entozoa, or animals within animals, where their eggs could not possibly have been deposited, is thought to argue powerfully for the independent generation of the lower animal forms, when certain conditions obtain that are favorable. This argument is thought to be strengthened by the fact that insects of a low species (the *acarus*) were repeat-

edly produced in abundance, apparently solely by galvanic processes instituted by Messrs. Crosse and Weekes; and in one instance, a growth of fungi of a beautiful and previously unknown species, was produced by the last named gentleman, by the same process.\*

5. Particular features of animal organization, which are apparently useless and incidental, are also adduced in support of the same theory of law-development. Thus female animals of many species have certain organs which are *necessary* to their sex; while the same organs exist *rudimentally* in the males, to whom they are *not necessary*. "For example," says the writer, "the mammæ of the human female, by whom these organs are obviously required, also exist in the male, who has no occasion for them. It might be supposed that in this case there was a regard to uniformity for mere appearance sake; but that no such principle is concerned, appears from a much more remarkable instance connected with the marsupial animals. The female of that tribe has a process of bone advancing from the pubes, for the support of her pouch; and this also appears in the male marsupial, who has no pouch, and requires none." Other animals, and especially among those which form links between lower and higher orders in the scale of development, have the rudiments of organs, to them unnecessary, but which were necessary to animals beneath them in the scale; but of facts of this kind I need not give further details. These abortive and rudimentary organs, ex-

\* These alleged results of the experiments of Messrs. Crosse and Weekes, were at first almost universally scouted as absurd and impossible; but subsequent repeated experiments, performed during several years, seem to leave no doubt of their reality. I perceive by a late communication, published in the newspapers, from Mr. F. F. Ogden, United States Consul at Liverpool, that that gentleman has recently visited the laboratory of Mr. Crosse, and became entirely convinced of the truth of the wonderful representations concerning this newly produced insect.

isting where they are not necessary, must, it is thought, be regarded as blemishes and blunders, on the supposition that the beings who possess them were created independently and by special exertion; but they are considered as precisely what might have been expected on the supposition that creation has proceeded through her various ramifications and transitional stages, according to the energizing and directing influence of a uniform law of development.

In further illustration and support of the theory of progressive development, the writer quotes the following startling passage from *Fletcher's Rudiments of Physiology*, in which it is shown that the general forms, and the order of succession, of the developments in the animal kingdom, are represented by the general forms, and the order of succession, of the developments of the human fœtus. "It is a fact" (says Dr. Fletcher), "of the highest interest and moment that, as the brain of every tribe of animals appears to pass, during its development, in succession through the types of all those below it, so the brain of man passes through the types of those of every tribe in the creation. It represents, accordingly, before the second month of uterogestation, that of an avertebrated animal; at the second month, that of an osseous fish; at the third, that of a turtle; at the fourth, that of a bird; at the fifth, that of one of the rodentia; at the sixth, that of one of the ruminantia; at the seventh, that of one of the digitagrada; at the eighth, that of one of the quadrumana; till, at length, at the ninth, it compasses the brain of man. It is hardly necessary to say," continues the writer, "that all this is only an approximation to the truth; since neither is the brain of all osseous fishes, of all turtles, of all birds, nor of all the species of any of the above order of mammals, by any means precisely the same; nor does the brain of the human fœtus at any time

precisely resemble, perhaps, that of any individual whatever among the lower animals. Nevertheless, it may be said to represent, at each of the above-mentioned periods, the *aggregate*, as it were, of the brains of each of the tribes stated."

Although these facts were stated by Dr. Fletcher without any view to the support of the development-hypothesis now under consideration, it is remarkable that the series of animal forms which he here traces as representing the series of successive human foetal developments, is the very series which, in the same order of succession, made their appearance on the globe during the depositions of the fossiliferous rocks from the earliest to the latest.

The foregoing are the principal arguments, fortified by many minor facts and considerations, from which the author of the "Vestiges" concludes that the whole system of creation, with all its diversified forms, inanimate and animate, from its first to its last stage of unfolding, was brought forth under the operation of one grand law of progressive development, by which "*the simplest* and most primitive type gave birth to the type next above it," by which "this, again, produced the next higher, and so on to the very highest, the stages of advance being in all cases very small—namely, from one species only to another, so that the phenomenon has always been of simple and modest character." He considers that after the production of the first and lowest animal form, the higher type was, in all cases, produced from the lower, according to the ordinary process of generation, and that its superiority to its parent was, in each instance, owing to a prolongation of the process of utero-gestation, aided by new and favorable circumstances, by which the form next superior to the parent, in the pre-ordained animal scale, was attained. A similar principle of transmutation was applied also to the Vegetable

Kingdom, by which it was thought that higher forms ascended from lower, until the highest were attained.

A theory so novel and startling as the foregoing, did not, of course, escape the most vigorous opposition from adherents of prevailing theories in philosophy and theology. This opposition was specially inspirited by the alarm which was taken by the dominant theology, which considered the theory in question as a bold invasion of her assumed prerogative as a generally unquestionable guide in matters of religious faith. The main features of this opposition (which, we think, was partly just and partly unjust) require here to be briefly represented, together with the essential points of argument in the rejoinder which the opposition called forth from the author of the "Vestiges."

The book in question was charged with a "direct tendency to expel the Almighty from the universe which He has made—to degrade the god-like race to whom He has intrusted the development and appreciation of His power, and to render the revelation of His will an incredible superstition;" and, probably with quite as strong a desire to neutralize this alleged tendency considered in the abstract, as to develop truth regardless of its consequences, its essential idea was pronounced "an opinion which has not a single fact in its favor—which stands in direct opposition to all the analogies of nature—which is repugnant to the best feelings of mankind, and subversive of all our most cherished convictions—a fraud committed upon the reason, and an insult cast upon the dignity of our species."\*

The zeal of the prominent opposers of this work, and their

\* North British Review for July, 1845.

devotion to the one grand object of putting it down, as indicated in these and similar denunciatory expressions, may, in some instances, have caused them to unconsciously magnify the seeming evidences against the theory it propounded, and as unconsciously to underrate any real evidence which may exist in its favor. Candor requires, therefore, that we should look at the merits of this, as well as of all controversies of a similar nature, aside from all mere denunciation such as novel theories, true or false, are ever apt to provoke—and in the light of the plain facts and arguments which bear upon the case, by whichsoever party these may be urged.

The nebular hypothesis of cosmical creations urged by the author of the "Vestiges," as the initial portion of the universal system of creation supposed by him to be unfolded by law, was objected to mainly on the ground that the Earl of Rosse's telescope had succeeded in resolving into stars certain nebula which were before considered irresolvable, and in considerably changing the apparent form and outlines of others, which had previously appeared such as to countenance the idea of agglomerating and rotating masses. In view of such "unequivocal facts," one principal reviewer regards it as a "most unwarrantable assumption to suppose that there are in the heavenly spaces any masses of matter different from solid bodies composing planetary systems." To this our author replies that the resolution of a great quantity of previously unresolved nebulae, by Lord Rosse's telescope, "was, of course, to be expected, and it is a fact, though in itself interesting, of no consequence to the nebular hypothesis." There are still many nebula which even the stupendous powers of Lord Rosse's instrument do not sensibly affect, and which probably no increase of optical power ever to be attained by human science or art, would be adequate to resolve. But the present

position of the nebular theory in respect to its philosophical credibility, is more fully represented in a previous portion of this work.

The theory of progressive succession in the organic kingdoms, as advocated by the "Vestiges," is disputed mainly on the following grounds: First, that fishes of a high organization occur (as it is said) in the oldest of the fossiliferous rocks; secondly, that in several instances the passage from a lower to a higher system of rocks, is accompanied by an abrupt and entire transition in the organic kingdoms, exhibiting none of the links of progressive gradation which the theory of the "Vestiges" supposes to exist; and thirdly, that in some instances several widely different and previously unknown species seem to have been introduced at about the same epoch, with apparently no links of connection between them.

To the allegation that fishes of a high organization occur in the *oldest* of the fossiliferous rocks, the author of the "Vestiges," in his sequel to that work, replies by quotations from geologists, showing a discrepancy in their statements upon this point, which, however, he shows may be explained by the fact, that since the statements of *some* of them were put forth, "the lower fossiliferous rocks have been divided into several distinct formations, in the lowest of which it is fully admitted there are no vertebrata. He, moreover, argues that the cephalopoda and gasteropoda, mollusks of a high organization, whose remains are found in the oldest series of fossiliferous rocks, might, as transmuted species, have come in soon after the commencement of the formation of those rocks, as owing to a "rapidity of generation" and "rush of life," which is sometimes characteristic of certain of the lower orders of animals.

In answer to the argument which negatives the idea of

connecting links between lower and higher species, and between widely dissimilar species existing in the same system of deposits, he *generalizes the field* of geological observation, and finds particular systems, both of rocks and their contained fossils, more fully and particularly represented in some localities than others. By the facts which he develops in this branch of the discussion, he succeeds in materially weakening, though perhaps not entirely disproving, the assumptions of his opponents, that the character of organic life has been subject to frequent abrupt and entire changes. He considers it probable, moreover, that "development has not proceeded, as usually assumed, upon a single line, which would require all the animals to be placed one after another, but in a *plurality of lines, in which* the orders, and even minuter subdivisions of each class are ranged side by side;" and he argues that "the development of these various lines has proceeded independently in various regions of the earth, so as to lead to forms not everywhere so like as to fall within our ideas of specific character, but generally, or in some more vague degree, alike."

Upon the whole, the author reasserts his main position with so much force and ingenuity, and brings to it such an accession of evidence from the testimonies of geologists and naturalists, as apparently to render the general onslaught of his opponents, for the most part, a failure; and perhaps it would not be unfair to consider their subsequent silence as, in some degree, a tacit admission of this fact.

Though the author of the "Vestiges" acknowledges that God is, in some sense, ever present with his creation, and supports and rules it by his Providence, he admits this merely as the intimation of an internal sense or feeling, for which he does not pretend to have any philosophy. But in the absence

of such a philosophy, those who *have not* this internal feeling of the presence and overruling Providence of God (as many have not), very naturally employ the whole force of facts and arguments, such as have a very thorough development in the book referred to, in support of the idea that nature develops all her forms and phenomena, by an inherent force of her own, independent of any superior influence, as received from a Source *without* herself. Such theories can, of course, be successfully met only by the weapons of a cogent and well-grounded philosophy, as relating to the matters in dispute; but as such a philosophy does not yet prevail, to any extent, in the world, it hence follows, as a fact much to be lamented, that faith in God and his overruling and universal Providences, is, to a large extent, at the mercy of pantheistic and materialistic philosophies. Such philosophies are hence continually growing more rife and rampant; and when those who know *for themselves*, from *intuition*, that there is a God ever present with, and ever ruling, the affairs of creation, find themselves incompetent to meet the arguments for the opposing views, they are apt to grow impatient, and to descend to mere ridicule and denunciation, and sometimes even to misrepresentation—a mode of treatment which seldom fails to excite the contempt of those toward whom it is aimed, and even to confirm them in their anti-religious theories.

Common sense should teach every one that it is worse than useless—nay, perverse and wicked—to close his eyes to plain facts in nature, *whatever* may be their apparent theological or philosophical bearings; and whoever would do such an act, is plainly not so much devoted to the furtherance of *truth* as he is to the maintenance of his own opinions. Looking fully in the face, therefore, as in duty bound to do, all the clearly established facts exhibited by the “Vestiges of Creation,” as

well as every other species of fact, let us see whether the general philosophy of this work will afford any light by which outer appearances, reflecting a natural law or force of development, and the interior sense of the human soul, respecting the constant presence of God, and the exertion of his upholding and directing power, may be rationally harmonized. By way of attempting the solution of all apparent discrepancies, as involved in these subjects, we will, in the following pages, endeavor to unfold the true theory of law agency and Divine agency, as it appears to us.

## CHAPTER XXIII.

### FURTHER VIEW OF THE SYSTEM OF LIVING FORMS, AS SUGGESTING ITS MODE OF DEVELOPMENT

HAD the author of the "Vestiges of Creation" and his opponents both understood the doctrine of Series, Degrees, and Correspondences, as unfolded in the preceding pages of this work, and had they duly observed the indications of these doctrines in regard to the origin, constitution, and laws of nature, the relations of visible effects to invisible and spiritual causes, and the relations of the universe and all its sub-serial and corresponding parts, to the Infinite Divine Spirit, as the Projector, Originator, and Vitalizer of all, they might, by a *mutual*, and in that case *obviously required*, modification of their views, have come to a perfect agreement on all essential points, without compromising any true principle of theological faith, or disregarding any real fact in science or true principle in philosophy. The view which, as it appears to me, reconciles all real scientific facts, and all true philosophical and theological principles, I will now proceed to briefly unfold.

I will premise by saying that the idea of *progression*, as a general fact connected with the origin and movements of creation, as a whole, and with the origin and movements of each of its sub-serial and correspondent parts, seems to be necessarily involved in the idea of successive movements or unfoldings, from beginnings toward predetermined ends. Every successive movement or effort is a closer approximation

to the proposed end of the whole series of movements, and is therefore a decided progress from a previous and more rudimental state or position. Accordingly all philosophy and all revelation concur in the acknowledgment that creation, from its incipient to its present stage of development, has passed through a regular series of progressive unfoldings; and this fact is recognized as applying equally to the cosmical universe, to the geological formations, and to the various systems of organic forms, beginning with the lowest and ending with the highest, whose remains have been successively entombed in the rocks.

It is true there are occasional and apparent exceptions to this rule—occasional instances of particular retrogression on the one hand, and irregular and abnormal advances on the other; but these are owing to local circumstances and isolated influences, and when properly understood, they *prove*, rather than *disprove*, the general rule. The idea may be illustrated by the following simile: Let a number of vessels, of different classes, be supposed to sail from the same port, at the same time, and bound to the same place of destination. Wafted by the same breezes, and floated by the same tides, they, for a time, make nearly equal progress, sail in nearly parallel paths, and generally keep each others company. But owing to slight diversities in their sailing qualities, and incidental differences in their modes of manœuvring, their courses gradually diverge from each other, and they get into different currents of ocean and of atmosphere, some of which are propitious and some the reverse. They are then farther dispersed by hurricanes; some of them, by violent gales occurring only in their own localities, may be driven hundreds of miles out of their course, or in a retrograde direction; a few of them may be driven upon rocks or quicksands, and lost out

right; while others may be driven forward with equal violence, and reach their destined haven in an apparently irregularly short period of time. Of course no one would consider the diversities in the fates and successes of these different vessels, or the fact that some were for a time driven backward, that some were lost outright, and that others were driven forward with a velocity which seemed to set all idea of a regularly graduated motion at defiance, as any proof against a general law of progression, as applied to the sailing of ships from port to port, but the proof would, upon the whole, be the reverse.

Allow these ships, then, to represent an equal number of Divine archetypes, or pre-existing ideal forms of creation, so to speak, which set out, at one and the same time, upon the voyage of progressive development, all being bound to one haven, viz., the realization of the clothing of an exterior form; the diversities in their movements, presented in the retardations and temporary retrogressions of some, and the fitful and apparently preternatural accelerations of others, as owing to the various currents and counter-currents of outer influences, no more disprove the law of *general* progression, with reference to them, than similar diversities of movement prove the same thing with reference to the ships. When we, therefore, find a few local examples of vertebral fishes among some of the strata of the first series of fossiliferous rocks, or when we find, in one or two instances, the remains of a diminutive air-breathing reptile, in an upper member of the Old Red Sandstone series, where, as it is stated, such have recently been found;\* or when, in human history, we find examples of whole nations and races remaining apparently stationary for thousands of years, while others have, at early

\* See Edinburgh Philosophical Journal for April, 1852, pp. 353-4.

periods, come to a high state of advancement in art, government, and social refinement, which were again succeeded by universal ignorance and barbarism—we are not to consider these examples as contradicting the doctrine of progression, as a *general* principle, but as only the *particular* and *local exceptions* to the *direct* development of that principle in outer forms.

Keeping in view, then, the doctrine of general Progression as an undeniable principle applicable to the universal series of creation as a whole, and to all its included and corresponding sub-series, we are prepared for further inquiries respecting the *order* and method of progression, and the mutual relations of the different parts or degrees of each series of creation to which this principle applies. In making these inquiries, our attention will be confined for the present to the Animal Kingdom, which will serve as a representative of all other serial creations.

The fact alluded to by the author of the “Vestiges of Creation,” that in the reproduction of the higher animals and of man, the embryo passes through successive stages of development, in which the types of all the lower animals, beginning with the fish (or, as some say, with the annalid or worm), are represented in succession, until its own proper type is attained, is certainly of great significance, as it bears upon the subject under consideration. But Professor Agassiz has made some further discoveries in the department of embryology, which would perhaps go to emphasize the conclusions to which this fact would seem naturally to point. I would refer now particularly to the discovery that the embryos of animals of certain *existing* families bear, at a certain stage of their foetal progress, a distinct resemblance to the perfected individuals of now *extinct* species of the same families, which existed in

early geological periods. From his remarks on this subject, I submit the following quotations :

“Embryology,” says he, “by the metamorphoses which take place in animals, assigns now a value to external forms, and not only assigns them a value, but a chronological value, by which it is possible to consider as lower those animals which agree with the earlier forms of the germs.” . . . . .

“The class of fishes which I have studied more particularly, has shown me that the first types appeared under forms, and with an organization, peculiar to *embryos* of that very class in the present epoch, proving thereby, with perfect evidence, the inferiority of the first created types, as well in their peculiar class as in their department. But though of a lower order, these types of ancient ages bore in themselves, from the beginning, the impression of the plan that was to be successively developed in the different epochs which have preceded the order of things existing at present, and by whose realization have been brought about those numerous families of Fishes, Reptiles, Birds, and Mammalia, which now live upon the surface of the earth.” Again: “All the information about the fossils—all the information of former ages, will have to be compared with those embryonic forms, in order to understand more fully the analogy which exists between these earlier types, and the successive changes which those of our day undergo to assume their final form. If I am not mistaken, we shall obtain from sketches of those embryonic forms, more correct figures of fossil animals than have been acquired by actual restoration.”\*

These extracts from one who is an advocate of the idea of creations *de novo* at different geological epochs, certainly argue

\* Agassiz's “Lectures on Comparative Embryology,” delivered before the Lowell Institute. Boston. Lec. xii

much for a connection of *some* kind between the lower and higher, or extinct and living, species of animals of the same families, and pretty clearly show that the higher and existing species are, in many instances, the result of an *extension of the identical gestative process* which, in its lower stages, was exemplified in the ancient species. Such being the existing evidence of a connection between ancient and modern species of the same families and genera, and that the modern species exist, at least as a progressed sequence of the *principles* involved in the ancient, we will now quote from the same author some further illustrations of the analogies and connections existing between the different and successively created divisions of the Animal Kingdom as a whole, with man at its head :

‘The unity of structure in vertebrated animals,’ says he, “has been understood, and well understood, long before Embryology had added any thing to show how deep this unity of plan was impressed on that type. By the investigations of Comparative Anatomy, it had been ascertained that the external differences which characterize the class of Fishes, that of Reptiles, that of Birds, and that of Mammalia, were only modifications of one and the same structure—that the head of Fishes, for example, though apparently so different from that of Man, was made up of the same bones, arranged in the same manner, only sub-divided into more distinct points of ossification, with modified proportions, most of them remaining movable for life, but, after all, arranged upon the same uniform plan.”

In a previous paragraph, the same author says: “It was in Physiology, a great discovery, when it was ascertained that all Vertebrata, that Fishes, as well as Reptiles, as well as Birds, as well as Mammalia, arose from eggs, which have one and the same uniform structure in the beginning, and proceed

to produce animals as widely different as they are in the full-grown state, simply by successive, gradual metamorphoses; and these metamorphoses upon one and the same plan, according to one and the same general progress." Again: "It may therefore be said, with perfect propriety, that the higher Vertebrates undergo changes, through which, in different periods of their life, they resemble the lower ones; that there is a period when the young bird has not only the form, but the structure, and even the fins, which characterize the Fish. And of the young Mammals the same may be said. There is a period in the structure of the young Rabbit (in which the investigations have been traced more extensively than in other species), when the young Rabbit resembles so closely the Fish, that it even has gills, living in a sac full of water, breathing as Fishes do. So that the resemblance is as complete as it can be, though each of these types grows to a complication of structure, by which the young Mammal, for instance, leaving behind this low organization of the lower types, rises to a complication of structure, to higher and higher degrees, and to that eminence even which characterizes mankind."\*

These facts certainly show a unity of plan and a progressive succession of, in *some* sense, mutually dependent forms, in the system of animated nature, which countenances the idea that the whole creation of lower animals is, as it were, the *fœtus* of the whole human creation, and that the latter was thus developed by a process somewhat resembling that which the author of the "Vestiges of Creation" supposed to have taken place, and which he calls "the universal gestation of Nature;" yet we shall soon see that, so far from this theory dispensing with the agency of a God, this universal gestative process could not have proceeded even through its first stages, without

\* Lectures on Comparative Embryology, Lec. xii.

the constant influx of a vitalizing and energizing Influence from above all nature, and hence from a source absolutely Divine.

It may here be remarked that these facts, developed by the researches of palæontologists, embryologists, and physiologists, concerning the relations and order of succession of the different divisions of the animated tribes, *are in perfect agreement with the general mode of philosophizing presented in this work*, by which all general facts in each system of creation, and all systems of creation as *grand facts*, are arranged in a harmonious serial order of progression, in such a way as to show a thread of unity and correspondence running through all systems, and through the grand system of systems, from the very origin to the very ultimates of all things.

This scheme of creation brings the Animal Kingdom, as well as the Vegetable, and all other complete systems of creation, together with the grand System of all systems, under the analogy of a TREE, with its seven serial and progressive parts, consisting of Roots, Trunk, Branches; Leaves, Flower-buds, Blossoms, and FRUIT. It is thus strongly hinted that the whole universal System of creation, with all its corresponding sub-systems, including the Vegetable and Animal Kingdoms, while *under the constant vitalizing and voluntative influx of Divine Love and Wisdom, which are spiritual Heat and Light, grew up, as it were, from Germ to ultimates*, in the same progressive and sequential order in which the tree grows from root to fruit, under the constant influx of *solar* heat and light, which are the *natural correspondents* of Divine Love and Wisdom.

But if this view is admitted, it will not of itself necessarily decide the question as to whether each higher creation was in all cases developed from the parentage of the one immedi-

ately below it in the series to which it belongs. There is, apparently, one exception to this order of parental extraction in the developed parts of the superiorly organized tree: The flower-buds, though they are the next superior development to the leaves, are not an outgrowth from the leaves, but, in common with these, they are the next superior outgrowth from the branches; and the leaves, after performing their specific functions, die and drop off, without giving rise to any succeeding and superior form of developments. The flower-buds are undoubtedly an ascension of the same essences and principles which, stopping one step short of them, produce the leaves, and which, in each case, ascend from all the preceding developments of the tree as represented in roots, trunk, and branches.

It should be remarked, however, that in a less perfect class of vegetable forms—the cryptogamia—the organs of fructification, involving, of course, the principles of the bud, are developed *upon the leaves*, which, in this instance, shows the relations of parent and offspring between the two developments, and preserves the succession between them unbroken.

Concerning the genesis of the Animal Kingdom, then, as well as that of all other Series and Degrees of creation, it may, so far as the known analogies of nature are concerned, and without in either case affecting our views of the Divine agency, be consistently believed, either that the higher tribes in the Animal Kingdom (as well as in the Vegetable and other Degrees of Creation), at certain periods, and under certain revolutionary conditions or Divine impulses hereafter to be explained—*proceeded by orderly descent, from the tribes next below them, as their natural parents*—or that they proceeded, at the same periods and under the same conditions,

*from the aggregate of all preceding developments of nature, as constituting their general material germ*; while they had no *special* lineal connection with the forms next below them in the series. Either of these suppositions would sufficiently comport with the unity of the general plan which we have before observed to pervade the works of creation. The probability is, however, that *both* of these modes of production were, to some extent, observed in the origination of the *ensemble* of the Animal and other Kingdoms; but in neither case is it probable that any form or creation was unfolded, except upon the basis of a suitable preceding development, which, in some sense, served as its material germ, or predisposing condition of development.

Unless we adopt some such theory as here propounded, many natural facts—facts which the cause of *true* theology and religion can never be subserved by denying—will remain entirely inexplicable.

## CHAPTER XXIV.

### LAW AGENCY AND DIVINE AGENCY.

IN the light of the foregoing remarks respecting the order, successive developments, and relations of the organic tribes, let us now press to a final and more specific decision, the question, whether the system of Creation, as it now stands, came to exist, in any sense, through the operations of Law?—and if so, in what sense, and with what accompanying conclusions relative to the doctrine of Providences, or of Divine interpositions?

But that we may pursue this inquiry intelligibly, we must obviously first define precisely what we mean by the term “Law.” Law, as it is understood by the best authorities, means simply a rule of action, or a definite mode or method in which force and motion proceed toward the accomplishment of an end. It is not, therefore, of itself, either force or motion, but only the *rule* of action which these, in their operations, are made to observe.

Now it may be safely asserted that there is no force or motion, either in the universe of matter or the universe of mind, which, in its operations, does not observe *some* rule, *some* method, and hence *some* law. If, indeed, there could be any action or motion *without* method or law, that action or motion would necessarily be chaotic, and would tend directly to the total subversion of all law and order, and thus to reduce all things to chaos. It is impossible for a man to conceive a

thought, except in accordance with some law of thought. Nay, it is self-evidently impossible even for the Infinite Mind to conceive a thought, or put forth an action, except in connection with some definite mode or form, and hence law, of procedure which that thought or action spontaneously assumes. In the Infinite Mind, therefore, Law, in its spiritual sense, is self-existent and eternal. Thence it proceeds, by volition, in outer creations, and assumes the forms of what are termed the "laws of nature." These, as modes, or rules of material motion, commence at the lowest and most chaotic germs of the physical universe, and (being constantly supplied by voluntative and *higher* inflowings from their Infinite Spiritual Source) proceed in regular order of ascending development, through all subsequent motions and creations, until, in the heights of the celestial universe, creation again merges itself in that Infinite Divine Essence from which it originally sprang. And as all motions are in accordance with some definite rule, method, or law, hence all forms, creations, and conditions, from lowest material to the highest spiritual and celestial, which, in regular serial orders, are developed *by means of* those motions, are necessarily law-developed and law-governed. If this were not so, then creation, indeed, would not exhibit *any* system or method in its arrangements, such as is now apparent throughout its whole domains, but the various forms of which it is composed, would necessarily be totally disconnected and confused.

It is worthy of remark, that the idea of law as governing the processes of creation obtains predominance in proportion to the development of the human mind. Thus the child conceives that the grass is made to grow by an abstract interposition of the power of God, with which he is unable to connect any idea of law. But as his mind unfolds, and the field of

his observation extends, he discovers that grass grows, in all cases, under certain given conditions, and hence grows according to a fixed rule. He still, perhaps, believes that God, by a direct and *isolated* fiat of His will, causes the rain to fall, the thunder to peal, and the lightning to flash; but a further development of his mind corrects this impression, and shows him that the rains, the thunders, and the lightnings, are dependent upon a more *general* administration of the Divine Power through atmospheric and electric media and conditions. He still, perhaps, imagines that the sun, moon, and planets are made to pursue their courses in the heavens by the direct volitional effort of God concentrated specifically and abstractly upon them; but when his mind is introduced to the series of demonstrations presented in the science of Astronomy, he perceives that all these phenomena are in accordance with a general method in which all aggregations of matter in free space act. He still probably believes (according to a common, and, as we have before shown, an erroneous interpretation of Sacred Scripture) that the earth on which he dwells was directly spoken into existence by God, in the space of six literal days, about six thousand years ago; but when he attains a more enlarged understanding of the mechanical and chemical forces which God has incorporated in the system of nature, and reads the physical history of our planet as written upon the rocks, he perceives that our globe has been brought from a primeval chaotic, to its present perfected state, by means of fixed methods of operation of matter, expressed by the terms, "condensation," "abrasion," "deposition," "segregation," etc. And if the hypothesis (seemingly supported by all analogy) that vegetable, animal, and even *human* organisms, came to exist through the instrumentality of equally fixed and unvarying laws, is now met by storms of opposi-

tion and ridicule, it should be remembered that precisely similar opposition, based upon precisely the same grounds, attended a similar announcement when first made, with reference to the origin and *modus operandi* of many forms and departments of nature concerning which the announcement is now fully admitted to have been true; and the final triumphs of Astronomy and Geology over the dragon of *unscriptural*, as well as *unphilosophical*, opposition, which stood before their parents to devour them as soon as they were born, should stand as a warning against a too hasty decision unfavorable to law-developments, as applied to all other departments, organic and even spiritual, as well as inorganic and material.

Yet, when it is asserted that all things, as to their creation and functional operations, are within the governing influences of law, the sense in which we have defined the term "law," should be distinctly borne in mind; and for the sake of more explicitness on this point, as well as to show that our position involves no objectionable theological corrolaries, we will here submit a few more considerations respecting it.

I have said that Law is not of itself *force* or *motion*—hence, that it can create nothing or do nothing of itself; but that it is simply the *mode* or *rule* by which force and motion act. Hence, when we speak of the "law of Expansion," for instance, we refer only to a mode of operation among particles or substances, which is expressed by the term "Expansion;" when we speak of the "law of Gravitation," we only refer to that particular mode of action among materials which the term "gravitation" defines. And we have a similar meaning when we speak of any other law. But the *Force* by which the action, proceeding according to these various laws, is generated, remains yet to be accounted for; and this we will now attempt to do, at the same time that we attempt to illustrate how

*modes* or laws of action came to be such as we see them. The remarks now to be offered will, at the same time, illustrate the *direct* agency which God has in the process of creation, and furnish the foundation of a true understanding of the doctrine of Providence.

One feature of the present subject has already been presented, under an illustration which may again be called up, and carried out into further particulars. A builder, before proceeding to the outer construction of an edifice, first conceives the general plan, and ideally perceives the general appearance of that edifice in his own mind. This conception is the archetype or pattern according to which the edifice, as an outer object, is to be erected; and its erection is a mere clothing of the archetype or pattern, with outer material investiture. But this clothing of the archetype can not be accomplished except by the voluntative and energizing influence of the soul, spirit, or mind of the builder acting among the materials to be wrought into the physical structure, which action may be either through the medium of the builder's own muscles, through the minds and muscles of others, to whom his commands may be given, or through a suitable machine which he has previously designed and prepared. And when the building is thus erected, it stands as an exact correspondent and embodiment of that particular *form* and *degree* of intelligence and volition, which were requisite to the conception of its plan, and the conjoining of its materials. After the building is finished, however, the builder withdraws all further action and influence from it, and it is left as a mass of perfectly dead and motionless materials; but could he permanently infix in it such portions or degrees of his own energizing spiritual essence as would be requisite to keep it in repair, and to constantly refine and improve it, and to develop its ultimate

purposes, the building would in that case be a *living* creation.

Now it was logically proved, in another part of this work, that the Universe, or the whole great Kingdom of materiality which it comprises, is not self-existent and eternal, but that it as necessarily had a *beginning* as any human or other physical organism had—that it is therefore necessarily dependent upon an antecedent and correspondent existence as its Cause, which must have been, *not inferior*, but *superior*, to itself, even as the natural sun is superior to the plant which its beams cause to grow. Being thus superior to, and the cause of, the whole of material existence, we were forced to conceive of it as a *super-material*, *super-universal*, and hence *spiritual* Existence, of which intelligence, personality, and hence *Divinity*, are predicable.

This spiritual, intelligent, personal Divinity, whom we call God, then, being antecedent to, and the Cause of, the universal system of creation, and sustaining toward it the same relation which an earthly builder sustains toward a house proposed to be erected, must, in like manner, with the latter, have conceived in his own mind the archetypes or patterns of the universal structure, with all its included kingdoms, systems, series, degrees, species, and essential forms, from lowest to highest, before proceeding to clothe these with outer investiture. And as in the mind of the human builder, the archetypes of the proposed house are, as it were, the spiritual nuclei around which, by his own volitional effort, the materials are made to cluster, and thus finally establish the structure as an outer creation, so in the mind of the Deity, the archetypes of the Universal Structure, of Solar Systems, of Geological Developments, of Mineral Kingdoms, Vegetable Kingdoms, Animal Kingdoms, and the universal Human

creation, with all the specific and essential forms which these respectively include, were the spiritual nuclei, and pre-existent, interior realities, around which, by the force of constant Divine volition, the requisite particles and essences are made to cluster, by way of establishing them in outer and tangible forms.

Now, both with the human builder and his house, and the Divine Builder and the system of the universe, the archetypes conceived in the mind, constituted the laws or rules by which outer materials acted in their aggregations into outer forms; while, in both cases, the *force* by which those materials were impelled to act at all, originated in the volition of the Builder. Here is the difference between *Law* and *Force*. Law of itself could not create any thing, though all things were created according to Law. Force of itself could not create any thing, though all things are created by the application of Force. It is by means of Force, as an impulsive principle, and Law, as a *director* of its impulsions, that all things have sprung into being.

The idea may perhaps be rendered still more clear to some minds, by considering the whole united system of archetypes as one grand *Mould*, fashioned in the wisdom of the Builder, into which, by the direct voluntative effort of the Builder, materials are poured, by way of forming the outer structure. But without the extra proceedings of pouring the materials into it, the mould might exist for ever without giving rise to the casting, while, on the other hand, all the efforts imaginable could not give rise to the casting, did not the mould exist to receive it.

We have seen that if the human builder, in clothing his mental archetypes of a proposed structure, could permanently infix in that structure that portion or degree of the energizing

influence of his own spirit, which would be requisite, by a spontaneous internal action, to keep the structure in repair, and at the same time to refine and perfect it, the structure would be, in some sense, a *living* creation. But although this is not the case with the human builder and his work, it is precisely the case with the Divine Builder and the universal Edifice which he has established. Not only does the system of creation as a Whole, but each of its included and corresponding sub-systems, contain a power of internal motion and sustentation, infused by the Creator at its origin, and which is now perpetually sustained by influx from Him, and is ever acting in parallelism with the original archetype, which constitutes its *law*. It was in view of this fact that it was argued, in another part of this work, in opposition to the received philosophy, that if the cosmical system could, by any foreign agency, become deranged or thrown out of equilibrium in any way, instead of the derangement progressing, and ultimating in a total wreck of the system, the internal forces of recuperation would be such as to soon restore the wonted equilibrium, and all things would go on as before. But on the other hand, were the Creator to withhold the influx of, and withdraw, his vital energy from the universe, as soon as the momenta of existing forces and motions became exhausted, all things would necessarily come to an eternal stagnation and death!

I have said that the archetypes or pre-existent ideal patterns of each creation, are the *spiritual nuclei* of the outer forms of which that creation consists, and hence that they constitute the *laws* by which Force acts in the aggregation of substances for the development of their outer forms. Now, as it was before shown that each creation, both as to its exterior and its interior and vitalizing constitution, is seven-fold, so each creation, with its spiritual nuclei, life, and laws, is, in some

sense, a correspondent and representative of the seven-fold constitution of the Deity, or the "seven spirits of God" spoken of in Revelation. Each seven-fold creation, therefore, is the same with all others as to *correspondence*, but is different from all others as to *degree*; and each one contains within itself, as its vitalizing and energizing soul, a *corresponding degree* of the seven-fold harmonies of Divine Love and Wisdom.

Let this latter point be distinctly understood; God exists in the universal cosmical system as its soul, but does not exist there *as God*, but only in the quality and capacity of those vitalizing and operative forces and principles of form, which were necessary to the creation, and are now necessary to the subsistence, internal motions, and constant improvement of the general creation, *as such*; in Solar Systems, God exists in the *degree* of those vital and motive forces which are necessary to them, *as such*; in planets God exists, also, in his seven-fold harmonies, but only in a degree necessary to constitute the vitality, and to originate the internal motions and other functional operations, of planets, *as such*; in the Mineral Kingdom God exists as mineral and chemical Life; in the Vegetable Kingdom, as the principle of vegetable Life; in the Animal Kingdom, as the principle of animal, instinctive, and semi-intellectual Life, but not yet as God; in the Human World he exists as the principle of human Life; but only in a perfectly integral, pure, innocent, and harmoniously constituted Man, does He exist in his focalized and quantitatively diminished, but qualitatively perfected Selfhood, *as God*. But in a discreet degree above the whole universe of outer creations, He exists in his August, Infinite, and Ineffable Selfhood, as the Alpha and Omega, the First and the Last, the Beginning and End of all things!

Though these investigations have been pursued, and these

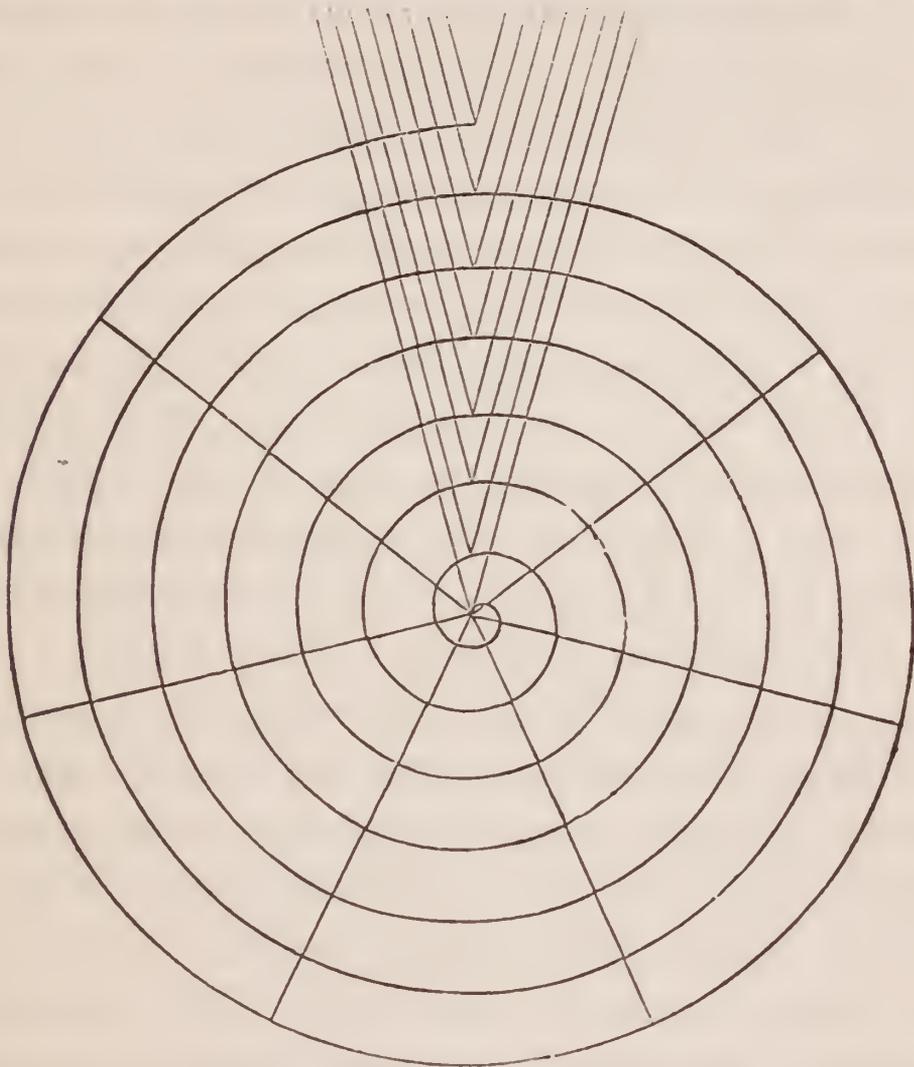
conclusions have been drawn, independently of the revelations of the Scriptures, I can not abstain from marking their perfect parallelism with the language of Paul in the following passages: "One God, who is ABOVE all, and THROUGH all, and IN YOU all."—*Eph.* iv. 6. "And he is BEFORE all things, and by him all things CONSIST."—*Col.* i. 17. "For OF him, and THROUGH him, and TO him are ALL THINGS; to whom be glory for ever."—*Rom.* xi. 36. Representing the Divine vitalizing principle flowing into, and pervading man, as taking the character of man, the same as when flowing into, and vitalizing animals, vegetables, minerals, worlds, it always takes the specific character of its receptacle—David, addressing the Deity, says, "With the merciful thou wilt show thyself merciful, and with the upright man thou wilt show thyself upright: with the pure thou wilt show thyself pure, and with the froward thou wilt show thyself froward."—*Ps.* xviii. 25, 26. This can not mean that God, in his true personal character, is any other than merciful, upright, and pure, but that his vitalizing and energizing inflowings into man (without which man would be dead, body and soul) can excite the qualities of mercy, uprightness, purity, etc., only as these comport with the character of the receptacle. It is said, moreover, that God dwells "with him who is of an humble and contrite spirit;" that is, dwells, not as a mere generator of material force and action, as he dwells in the lower creations, but dwells *as* God in his interior soul, as in a temple; while the "fullness of the Godhead" dwelt "bodily" only in that ever-to-be-admired personage, who was absolutely *without* sin, who expressly declared that he was in *unity* with the Father—that he was *in* the Father, and the Father in him, and in whose celestial purity, disinterested and unbounded love, and life-long labors and sacrifices for the good of humanity, we

have the only full and true manifestation of the moral attributes of the Deity.

The foregoing will probably serve to the reader as a sufficient illustration of the various *degrees* of the Divine Principle, as now embodied in the different and corresponding Series and Degrees of the creations he has formed. The *method* of the successive origination of these various Series and Degrees of creation, has also been incidentally implied in what has been said; but as this is a point which bears upon important speculations which are rife in these days, some further illustration upon the subject may be useful.

The point to be illustrated and insisted upon is, that creation did not develop itself, either according to inherent forces of its own, nor are its development and its present internal operations, owing simply to the momenta generated by the *first impulses* impressed upon matter by the Creator, while the Creator himself retired for eternity, as one would retire from a clock that was once wound up and set a-going. In case of such retirement of the Deity, after the first impulse had been given to materials, those materials would have moved *only in the direction of the impulse*, and *only until the momentum generated became exhausted*, and creation could not possibly have passed one Elemental Degree beyond a *first* development. Hence, each superior degree of creation must necessarily have been accomplished by the aid of forces *outside of, superior to, and altogether independent of, itself*, which gave the physical elements, involved in the previous development, an upward attraction, and a tendency to aggregate in the form of the next superior series of archetypes conceived in the Divine Mind. And this is true in respect to the development of creation, as one Grand Series, and also in respect to the development of each of its corresponding sub-series.

This whole subject, with other points in our general philosophy, may be illustrated by the accompanying diagram.



Let the seven-fold triangular figure (one angle being *within* another) which descends from the upper part of the diagram, and whose *most exterior* angle comes to a point at the center of the diagram, represent a seven-fold Ray or Glory emanating from the Divine Being. This we will suppose to represent the *Complete Degree* of the Divine Soul, and Spirit, and Person, which was to generate, and to be in some sense embodied in universal creation with Man at its head. Resolved into three Discreet Degrees, we will suppose that this Ray or Glory consisted of Divine Spiritual Heat, which is Love, of Divine Spiritual Light, which is Wisdom, and of Divine Po-

tentializing Essence, which is the “complex, continent, and basis” of the preceding, and hence the medium of volitional operation. We will suppose, then (what *can not* be essentially erroneous), that from the empyrean heights of infinite perfection, where God, before creation began, had from eternity dwelt in inconceivable greatness and perfection, this seven-fold and three-fold Ray emanating from his own Person, descended by volition, and at its lowest extremity, resolved its most exterior essences (represented by the *outer* triangle) into *atomic particles*, which, in forms and constitutions, corresponded to archetypes previously existing in the Divine consciousness, and which were designed to be wrought into the structure of this universe and all it contains. Let the central point in the diagram, then, represent the *atomic* or *lowest* stage of creation, this being the physical Germ from which the great Tree of universal Being was to grow. From this central point, it will be observed, proceeds a *spiral line*, which, while constantly receding from the center, winds around through six radii, and completes the circuit of the diagram on the center of the descending Ray, on which it commenced. This spiral line, in passing around, represents the inception, progress, and completion, of the first Circle, Series, or Complete Degree of Forms. From the center of the descending Ray, and the apex of a second and more interior triangle, the same spiral line thence continues, and, completing another circuit while perpetually receding from the center, represents the course of the next higher and corresponding Circle of creations. And so, commencing every time at the point representing the completion of the previous Circle (this, at the same time, being the focus of a more interior Degree of the Divine generative Principle), it continues its corresponding circuits around the diagram, all the while expanding from the center, and thus representing the

course of higher and still higher creations, until the last is attained, which is Man.

Now the descending Divine creative Ray forms the seventh radius of the circle, which represents the beginning and ending of each Series or complete Degree of creations. But the end of each is represented as *higher* than its beginning, and as in conjunction with, and subject to the operative inflowings of, the next higher Degree of the Divine generative Principle, which is represented by the apex of the next more interior triangle. Each Circle of developments traced *directly*, or from beginning to end, may be called a "line of *natural ascent*:" each circle traced *inversely*, or from end to beginning, may be called a "line of *spiritual descent*," representing the descent or operative inflowings of the Divine vitalizing and formative Energy, by which material elements involved in inferior forms are refined, energized, and brought by an *upward attraction* into next superior, and thence still superior, and finally into *highest* forms, according to the pre-existent archetypes of said forms, or their Divine spiritual patterns. Thus is the great Tree of universal creation brought through all its successive stages of development unto perfection, by constantly descending influences from the Divine *Spiritual Sun*—in the same way as the vegetable tree is made to grow from germ to ultimate, by the constantly descending influences of the *natural Sun*, which, however, is interiorly vitalized by the *Spiritual*. But we think it ought to be entirely obvious to every intelligent mind, that *without* these descending and vitalizing influences, *neither Tree could proceed a single step* in its ascending development; and, moreover, if at any time during the course of their development, this *superior and independent* influence should be withholden, the development would necessarily and immediately cease, and stagnation and decay would ensue.

If the tree can not grow without the sun, it may be considered equally certain that nature as a *whole*, and hence, also, as to its component parts, from greatest to most minute, has no power of development or motion in and of itself. Hence all power, as well as its directive influence, must be from *above* nature, and hence from God; and hence all stellar systems, solar systems, worlds, minerals, vegetables, animals, and even animalcules, were created and are governed, *not only by the remote and indirect, but by the immediate and direct, agency of God!*

These are among the considerations which we think completely overthrow the pantheistic speculations with which much of the philosophy of the day is more or less impregnated.

The diagram, also, by presenting a succession of continually expanding circles, all having one center, and being constituted after one principle, presents a clear and concise illustration of the doctrines of Series, Degrees, and Correspondences, and will serve thus to fix permanently in the mind a true idea of the complexly-unitary constitution, and harmoniously interblending movements of the universe, as expressive of the Love, Wisdom, and infinite internal harmonies of its DIVINE AUTHOR.

## CHAPTER XXV.

### PROVIDENCE.

THOUGH it is shown in the foregoing pages, that creation must have been developed, and must now be governed in its operations, according to directive Wisdom existing in the forms of *fixed laws*, there is nothing in the theory presented which contradicts, but every thing which confirms, those deep intuitions of every well-regulated mind, respecting the constant *Providence* of God as concerned in the unfolding and government of his creation. If, as we have seen, law of itself has no creative force, but is simply a mode of action prescribed and predetermined by the archetypes and intentions conceived in the Divine Mind; and if to the realization of each succeeding stage of creation, however great or minute, an *additional* and voluntative influx of Divine formative Energy, was absolutely necessary; and, moreover, if the same constant influx is necessary to sustain the life and motions of the system after it is in being—then it follows that every event, from the birth of a world to the falling of a sparrow, or the rustling of a leaf in the summer breeze, is, in some sense, a *Providence*—that is, it was *provided* for in the pre-determined course of Divine intelligent volition and causation. But to prevent involving creation in inextricable confusion, and to establish and preserve an orderly relationship and affectionate interblending of all forms, and a just and harmonious reciprocation in all their offices and movements, God orders even his *providences* accord-

ing to laws, or, it may almost be said, he has made them *synonymous with* laws.

It may safely be believed that the present order and plan of creation is the best that could have been devised by the Divine Mind ; for otherwise, the present plan would not have been adopted. But if it is the best, then it requires no fundamental change, and not even any modifications, except such as may comport with a constant *general progression* on the basis of the original plan. But while all progression in each department is dependent upon an *influx* or inhalation (hence *free bestowment* by the Divine Being), of *additional degrees* of that Divine vitalizing influence which is specifically suitable to itself, and while all progression is in this sense *providential*, God can not, either in causing a progressional or any other change, and without deranging the established, and hence *best possible order of things*, act providentially and *directly* upon any department of creation, except *through the medium of that particular kind of force or vitality of which the thing acted upon is a suitable receptacle*.

Thus, considering the universe in its most general aspect as one grand Whole, God can not act *directly* upon it, or modify its existing activities and tendencies, except through the medium of those forces and laws of Expansion, Contraction, Circulation, Aggregation, etc., in the *degree* in which they apply to the universe as a whole. He can not act *directly* upon solar systems and worlds, except through the medium of the same laws and forces in their higher degrees of unfolding as applicable to solar systems and worlds ; God can not act *directly* upon Mineral creations, except through the forces and laws of *chemical affinities* ; He can not act *directly* upon Vegetable Kingdoms, except through the forces and laws of vegetable life ; He can not act *directly* on the Animal Kingdom, or

any of its forms, except through the forces and laws of animal, sensational, and semi-intellectual life; He can act directly on selfish and sinful human nature, only by those isolated and disjointed motive forces which are adapted to reach and affect the disjointed mental and moral constitutions of selfish and sinful human beings; while God can act *directly* and *fully as* God, in all his affectional, intellectual, and moral nature, only upon a perfectly pure and sinless intelligence—a being fitted for the harmonious influx of all the affectional, intellectual, and voluntative principles of the Divine Soul—a being, hence, who stands in the perfect image of God, and who, in principle, is *one* with Him. Hence, when such a being acts (and there never was but *one* such a being), it may be said that God acts *with* him, *in* him, and *through* him, and that his every act is in the fullest and most Divine sense, a *providence*.

But as the infinite Divine, personal, and volitional Intelligence is above all things, and over all things, and is the inexhaustible Source of all streams of vitality and motive force which flow into the various departments of His creation, it may be rationally conceived, that by withholding his inflowings into the universal system as a whole, he could cause universal stagnation and dissolution to ensue; or that by increasing those inflowings, he could stimulate all firmamental developments and solar and planetary motions, to unwonted activity; or that by diminishing his influence in one portion of space, and increasing it in another, He could cause the dissolution of some worlds, and the absorption of their materials by others; or that by modifying his influences upon the electric, aerial, and subterranean forces of a particular planet (such as our own), he can cause floods to deluge the earth, or subterranean fires to overwhelm cities, and destroy such human beings as must otherwise stand as obstructions to true progress; or that

In a similar way, he might cause a rarefaction of the atmosphere in one locality, and a condensation in another, and thus cause a current of wind sufficiently violent to cleave the waters of a gulf, and afford a dry passage for a particular people through whom he designed to affect great purposes.

It will doubtless still be argued that such occurrences, if they ever do take place, are results simply of the forces and laws of nature. In a qualified sense, this is granted, as we have shown before that *all* action, whether physical or spiritual, is according to some laws; but we insist that it is an exceedingly superficial view of the laws of nature, which supposes that they are self-generative and self-active, or that they can exist for a moment as separate from that Divine vitalizing and spiritual Principle which, in an earlier stage of this work, we showed was necessarily self-existent and eternal.

But if this self-existent, and all generative, and vitalizing Divine Principle may operate upon mundane forces and developments in the way just described, he may, in a similar way, control, modify, and direct chemical and mineral, or vegetable, or animal, or spiritual forces and developments, by a voluntary graduation of those influences, proceeding from himself, as adapted to either of these departments of his creation. And all such operations would be instances of *direct* providences.

But while it would be impossible for God, consistently with the fundamental, which we have presumed to be the best possible plan of creation, to act *directly* upon any *one* department of being, by forces specifically adapted only to *another* (as, for instance, to act directly upon mind, by that Degree of attractive force known as "gravitation," or to directly control planets by the motive forces of moral and

rational convictions), it is none the less conceivable that each department of existence may be *indirectly* influenced through the medium of some other department, which is made the receptacle of *direct* influence. Thus it may be conceived as possible for God, by special and designed action upon a particular planet, to change the orbit of such planet, and thus *mediately* change the orbits of all the planets with which it may be associated, and thus to change their seasons, and thus their inhabitants, if they have any, and thus even to produce an endless concatenation of *spiritual* changes; or, that by action upon one particular department of the Mineral, Vegetable, or Animal Kingdom, He might change other departments of the same Kingdom, and thus indefinitely change the relations existing between them all.

Similar remarks are especially applicable to the Divine government of the *Human* world. Notwithstanding every human being, and the whole race, as one grand Man, was designed to reflect the image of the Creator, human nature, in its present state, is undeniably more or less depraved, selfish, and inharmonious, and hence is not receptive of the Divine influence, in its pure and harmonious state. The Divine spiritual influence, *directly* and *immediately* infused into the human world, therefore, and without the mediumship of a *perfect* human personage to harmoniously reflect, truly define, and correctly apply, its principles, would necessarily take a form of manifestation more or less characterized by the imperfections of degenerate humanity as its *receptacle*—in the same way as the Divine operative influence, flowing into animal or still lower creations, takes a form of manifestation peculiar to those creations. On this principle, and this principle alone, it is conceived, we may account for the imperfection of the *impressions* which the Divine inspiration gave

to Moses, and David, and the prophets, and the imperfections of the code of ethics, principles of government, and policy in respect to other nations, which grew out of these impressions; for all these were evidently imperfect when judged by a *Christian* standard. Still, by means of such inflowings, as the psychical and mental constitutions of these mediums rendered possible, God, without immediately obliterating existing evils, pressed these evils into the service of ultimate good: and by arraying one nation against another, subjecting some to utter extermination, humbling others, by long disciplinary chastisements, etc., so directed the general course of human events as provide for the influx of more and more light, and for the final coming of him who was emphatically "*the Light of the world.*" And now that that Light has come, a similar course of indirect Divine providences is continued with reference to nations and individuals, evidently with the view to the ultimate bringing of all under the full influence of its life-giving beams, and to the establishment of that Divine Kingdom in the world which shall "break to pieces and consume all other kingdoms, and stand for ever."

But if in this disjointed and degenerate state of the human faculties, God can discharge the highest functions of his Divine government only by bringing the appropriate forces of one human faculty, one person, one society, or one nation, to bear upon another, it is equally true that in the *perfect* man, God rules *directly, personally* and absolutely *as God*, in all his harmoniously consociated affectional, moral, and intellectual attributes—in the same way as he rules as mechanical, chemical, or vegetative Force, in different departments of nature without. Nay, in such a being, as the ultimate and harmonious embodiment of *all* the principles of his Love and Wisdom,

God absolutely *dwells*, in his integral and *personal* capacity, as in a temple; and therefore such a being is God in his focalized capacity as adapted to a direct conjunction with humanity. All that authentic history informs us of the character, actions, and teachings of Jesus goes to justify the belief that he was such a divinely human and humanly divine personage.

It should be observed, that a perfectly pure and sinless intelligence, such as is here conceived, must, as viewed in a *human* aspect, stand at the very *apex* of visible creation, or at that point in a grand seven-fold circle of existence at which *endings* merge into *beginnings*. Hence, the Divine Soul, focalizing in all its harmoniously combined principles, in such a being, would maintain the same relations to inferior physical constitutions, and to all outer physical substances which lie within his sphere, as the Divine Being in his whole infinitude, sustains to the physical universe as a whole. Hence the Divinity, in this *focalized* capacity, would maintain toward all things within his sphere, the relations of a *New Beginning Principle*; and if God in his *infinitude*, as the Beginning Principle of the universe as a *whole*, could, from his free volition, make and unmake laws to govern the present system of things, then God, in the condescended form of his personal Being as manifested through a suitable human organism at the end of an old, and the beginning of a new creation, may, in equal consistency with the rules of Divine order, establish new laws, or rather enact immensely *higher degrees* of *old* ones, as relating to such existences within his sphere as need such interference. There is nothing irrational in the supposition, therefore, that the Divinely human, or humanly Divine Principle (which are one and the same), could, by volition through the outer organism which served as its medium, concentrate its vital energies upon the diseased bodies of man, and even

the inorganic elements of the outer world, and produce such effects as are commonly designated by the word "miraculous," and that, too, simply according to that *higher degree* of laws specifically adapted to such operations, and unfolded for such specific purposes. Such would be instances of the highest manifestations of *indirect* providences.

But if God dwells and rules, with a perfect and harmonious display of all the principles of his nature *as God*, in a being such as we have supposed, then it follows that the more any man is *like* such a being, the more fully God "works within him to will and to do according to his own pleasure," the more he is under the *direct* operation of the highest order of Divine Providences, the more he is raised, as it were, above the sphere of mere material things and their laws, and the more he becomes a medium through which the Divine Being, in his affectional, intellectual, and volitional nature *as such*, acts upon beings and conditions *below* him, to bring them up to the true standard of healthfulness, harmony, and perfection! And when all human beings shall be fully united to God—shall fully "dwell in him, and he in them," then all human beings, with their outer conditions, and even the whole *physical* world, divinely acted upon through their mediation, will undoubtedly be spiritualized, and elevated one Discreet Degree, and peace and plenty, and that universal harmony and love, which may be considered as uncontaminated and unperverted outflowings from the Divine Fountain of Infinite Harmony and Love, will take the place of the corroding selfishness, the distracting animosities, and the physical, as well as moral, diseases and sufferings which now roll their desolating waves over the earth.

Let it be distinctly understood that the foregoing theory of Divine Providences is presented simply as a rational deduc-

tion of *philosophy*, aside from the teachings of *Scripture*. The few scriptural phrases we have employed in this disquisition, have been employed *incidentally*, solely in consideration of their appositeness, as expressing certain ideas which have lain within the course of our reasonings. Being actuated by the sole desire of developing the teachings of *philosophy*, with reference to these questions of theology, it is not pretended that we have attained to a *full* unfolding of truth upon the subject discussed, or even to so clear a presentation of that measure of truth which has been found, as might have been attained if we had freely availed ourselves of scriptural aids. But while, by the course we have pursued, our conclusions have been left unprejudiced in the view of such of our readers as may be disinclined to admit the authority of the Bible, we beg such readers, in candor, to observe, that so far as the teachings of nature and philosophy have, in these pages, been brought into view, there is *not* that hostility between them and the teachings of the Bible, which unbelievers in the latter have generally supposed to exist. The object of all investigations should be, not to establish the authority of a Book, or of a philosophical creed, but to discover Truth; and if some of the most vitally important of all truths are recorded in the Bible, it must be acknowledged, even by all *candid* infidels, that while these are *no more*, they are *no less* sacred, and while they should be received with *no more*, they should be received with *no less* avidity, than if the same truths were found any where else.

What has been said respecting Providences, will serve to give a general idea of a subject which is far from being exhausted in this discussion. Instances of apparently still more special providences, as affecting the specific con-

ditions of individuals, can be intelligibly illustrated only in view of certain psychological and spiritual laws, which will form the themes of appropriate remark when we proceed to the consideration of the Microcosm, or the universe within.

#### CONCLUSION OF THE VOLUME.

We have thus endeavored to exhibit a general view of the various Series and Degrees of systematic creation which compose the aggregate of the outer realm of being—both in their separate and united capacities, together with their relations to each other and to their common Divine Cause and Governor. We close this first part of our treatise with the following remarks :

1. If our Philosophy, as to its distinctive features, contains *no* truth, it can at least do no essential evil, as it must be that a system of unmitigated error, of so bold and conspicuous a kind, and put forth in this unguarded manner, would exhibit so many vulnerable points as to meet with its death wound the instant it is exposed to the shafts of criticism. If it should be entirely overthrown, however, there would still necessarily remain some possible mode of systematizing and harmonizing Nature and Truth in one general philosophic view, if it so be that Nature and Truth are *intrinsically* systematic and harmonious; and the discovery of this mode is worthy of the highest efforts of philosophic minds. I would respectfully submit, however, that promise of a discovery of this kind, can only be given by *some* such process of serial, gradational, and correspondential reasoning from interiors to exteriors, as has been pursued in the foregoing pages; and that so long as men *confine* themselves to the ordinary processes of reasoning merely from effects to causes, so long their conclusions

will, of necessity, be more or less divergent, and so long they will, at most, be able to attain only the *body* of truth, without its *soul*.

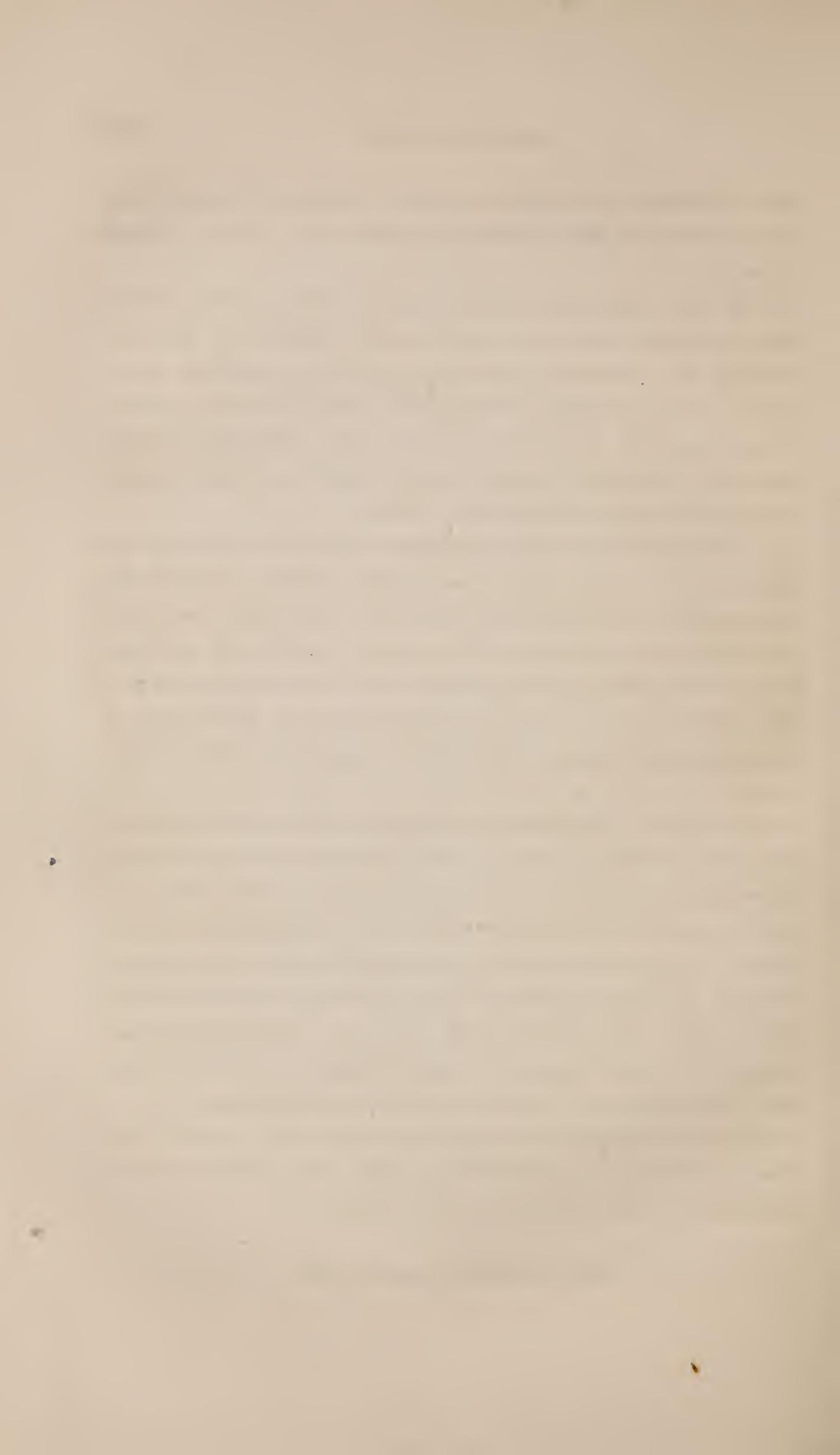
2. If our Philosophy contains some truth and some error, then its truths, bearing as they do upon subjects of the most striking and important character, may, by exciting minds capable of elaborating and extending them, yet form the nucleus of a grand system of true thought, which may be progressively brought to a state as near perfect as may comport with the finiteness of the human mind.

3. If it contains a large preponderance of truth, and but little essential error, then considerable progress has already been made in developing the means of reconciling the jargon of conflicting thought upon all subjects natural and spiritual, and in demolishing the partition walls between the Jew of Theology on the one hand, and the Gentile of Philosophy on the other, and making of the twain one new man, thus making peace.

We are next, therefore, in the light of facts, truths, principles, laws, correspondences, etc., developed in the preceding pages, to proceed to consider a general theme of perhaps still more interest, viz., the *MICROCOSM*, or corresponding universe *within*. In the course of our investigations upon this subject, we shall probably speak of man physically, psychologically, individually, and socially, with a view of exhibiting his relations to all other things, his susceptibility to their influence, and the conditions of his true progress and happiness.

Should not unforeseen influences prevent, this second Treatise, or rather second part of the present one, will be ready for publication in the course of a few months.

END OF THE "MACROCOSM."







CHIRON FASCINATING ESCULAPIUS B. C 928.

**CHIRON** the Centaur, a prince of Thessaly, has fascinated his pupil **ESCULAPIUS**, brother prince, for the purpose of discovering a remedy to cure the foot of **HERCULES**, which had been wounded by a poisoned arrow. An herb was prevised which saved the hero: this plant, known from the circumstance as the Centaury, (Centaur's herb,) gave name to a genus, one species of which is our common blue-bottle. Chiron was the great physician of his day, and derived his name from a Greek word, meaning the hand, because he performed most of his cures by manipulating. His wonderful skill in horsemanship has made the poets represent him as a centaur, half man, half horse. In after times, the medical fame of Esculapius far eclipsed that of his master, Chiron, and he was early invested by the people with divine honors. His mode of practising, called by his descendant Hippocrates, the secret means of medicine, can be found detailed in the work.

# FASCINATION,

OR THE

## PHILOSOPHY OF CHARMING

ILLUSTRATING

THE PRINCIPLES OF LIFE

IN CONNECTION WITH

SPIRIT AND MATTER.

BY JOHN B. NEWMAN, M. D.

AUTHOR OF VARIOUS WORKS ON NATURAL HISTORY, &c

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## P R E F A C E .

It is related of Epimenides, one of the sages of antiquity, that he fell asleep in a cave, and remained in that state some years. When he awoke, everything was altered around him, and he scarcely knew where he was. During his absence he affirmed that he had familiar intercourse with spirits, and obtained the gift of prophecy, etc. He was reported able to dismiss his soul from his body, and recall it at pleasure. So high was his reputation for sanctity, that during a plague in Attica, 596 B. C., the Athenians sent for him to perform a lustration; in consequence of which the plague ceased.

Some German students in the last century, wishing to raise the devil, carried a pan of burning charcoal into a close room, and throwing in it various prescribed substances, danced around it, chanting a magic formula. One of them fell dead, and the rest, upon seeing his fate, fled with difficulty; the incantation, they thought, had evidently been too powerful. A professor in the same university accounted for the facts by the poisonous influence of fixed air (carbonic acid gas) generated by the ignited carbon; and offered to produce the gas at pleasure. He was instantly accused from this of having intercourse with familiar spirits.

Science has long since endorsed the professor's solution, and to doubt it at the present day would betray gross ignorance. Not so fortunate, however, was Epimenides, for it is only in our own times that his claims have been acknowledged; and from the want of more extended information, many are even now incredulous. Increasing light will induce belief, and it is my earnest wish that the following pages may tend to that result.

Man, besides soul and matter, possesses an intermediate principle distinct from and between both, called the life power: or in the words of Bonard, "he is an intelligence served by organs"—these organs being the servants of the life power, by which it operates upon the material world, and is in turn operated upon by it. A proper knowledge of the life power is a key to explain all the phenomena of fascination; and this it is the object of the present work to communicate. A very concise but perfectly clear idea of physiology is given, and on this the foundation is laid.

The Delphic priestess inhaled fixed air to act on the life power in such a manner as to cause the *spiritual* in the system to preponderate over the *material*, that she might the better give her responses. In some cases so great was the preponderance as to cause death; the priestess sharing the fate of the German student (who accomplished his desire), and by the same means. When the wished-for change is induced, new powers or instincts, previously dormant, become suddenly developed; and like the lower animals, who, when sick, run and devour the herb suited to their case, a like faculty of properly prescribing remedies is perceived—the spiritual world is often beheld, and its denizens sometimes give the sleep-wakers information of events that will shortly happen. History tells us that the coming of Cortez, and his conquest of their nation, had been told the Mexicans long before a Spaniard was ever heard of; and the journals of the missionaries stationed at the Pacific isles will present similar facts.

We can now see why the brazier was used in the incantation of the student, and the probability of Epimenides undergoing a change upon entering a certain cavern (likely by accident the first time) wherein fixed air was generated. His powers of curing disease, having intercourse with spirits, and predicting events, are thus explained. It should be remarked here, that none but those predisposed to the change, can experience it; all artificial efforts to induce it, except in such, resulting in almost certain insanity or death.

Like many others in my profession, I was a bitter enemy to fascination till accidentally led to examine it; but having done so, found the phenomena it presented, though new and startling, in strict accordance with the laws of life. In explaining my views, I have written for the people, entirely dispensing with technical terms except in one or two instances. That their perusal may clear up in the minds of others as many obscure and mysterious points as they did in his own, and thus subserve the interests of truth, is the sincere desire of the

AUTHOR.

296 FIFTH STREET, NEW YORK CITY.

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# FASCINATION

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## CONVERSATION I.

CHARMING.

LADY. My dear doctor, I can never sufficiently thank you for the relief you have afforded me by your treatment. I had been for years on the verge of the grave, and without the expectation of ever being, even for one day, free from pain. The first time you fascinated me, I experienced an incredible change—my pains ceased, the heart beat regularly, and my appetite returned, and what is better still, my improvement has been rapid and thorough since then. I confess this freely, as it will preface what I am afraid will give you some pain. My friends attribute my recovery to imagination, and seem to think I was not really ill, but only nervous; and they suppose that a sufficient degree of irritation would make me as bad as I was at first.

DOCTOR. They mentioned, no doubt, many wonderful cases of the effects of imagination on the body.

LADY. Yes, and some as strange as my own. The cases that had the most effect on my mind were that of Joe, the Scottish drover, who was persuaded to believe himself sick, and in consequence really became so—and would have died had not the joke been discovered to him—and that of the criminal whom the physicians

pretended to bleed to death, and who actually died from the fancied loss of blood.

DOCTOR. That imagination exercises a powerful influence upon our bodies, is an undoubted fact; but it is equally a fact that it has full credit for all it performs. Jussieu, one of the commissioners appointed to examine this subject by the French Academy in 1784, states, as the result of a series of assiduous and attentive investigations, that he had observed *some facts* that admitted of physiological explanations; *others* which seemed to militate against animal magnetism; a *third series* of facts which he attributed to the imagination; and, lastly, *those* which could lead to *no other conclusion* than that of admitting a *particular agent* in their production.

LADY. I had no idea the subject was known as far back as 1784; I thought it a new discovery of the present day.

DOCTOR. We have authentic records showing its existence for upward of three thousand years. I have been examining some authorities, and, if you are sufficiently interested in the matter, will take considerable pleasure in submitting the result of my labors to you; and also explaining the connection of fascination with the laws of life.

LADY. I am very much obliged to you for the offer, and will hold you to your promise. To tell the truth, I was on the point many times of asking the same thing; for I find it to be the universal opinion of every one I am acquainted with, that, if true, it is something allied to witchcraft, and if not true, the greatest humbug of the age; and, despite my own experience, I often feel very uneasy about it.

DOCTOR. I do not wonder at your feelings ; but, in relation to its effect on the imagination, I would ask if you believed in fascination before I saw you ?

LADY. I had never heard anything about it. One day, when you came in and found the medicine had as usual produced no effect, after some conversation on ordinary matters, you directed me to sit down and look attentively in your eyes, at the same time taking hold of my hands. In a little time a rather uneasy feeling stole over me, which soon became pleasant and exhilarating ; before long I felt sleepy, a dreamy and triumphant sensation succeeded, and my eyelids closed without the power to open them. My pains vanished, and when you opened my eyes, I felt better than I had done for years ; and to the surprise of all my acquaintances, who predicted a speedy relapse, my recovery has been rapid and permanent.

DOCTOR. Well, then, your case cannot surely be attributed to imagination.

LADY. I never thought it could ; but why do you name your new science Fascination ? Others call it Mesmerism, or Animal Magnetism.

DOCTOR. You are mistaken in supposing it to be a separate science ; it is only a part of medicine. And besides the names you have mentioned, Mental Electricity, Neurology, Pathetism, Sychodunamy, and many others, are in turn used to signify it. The forces of life, as I shall explain in another place, brook no interference from those of Chemistry or Mechanics, so that such terms as Magnetism and Electricity are inapplicable. Mesmer did not discover anything new. Neurology treats only of the nerves. Pathetism is a term derived from the Greek, meaning suffering and Sychodunamy

is another word from the same language, meaning the force of the soul. Now, as we have a word in our language already expressive of the power in the lower animals, I saw no necessity to add another, especially as Fascination is universally acknowledged.

LADY. You surely do not mean the charming of snakes?

DOCTOR. You have exactly expressed my idea; for the power in man and the lower animals is exerted through the same medium, and produces, to a certain extent, the same results. Do you remember any cases of the fascination of snakes?

LADY. Quite a number. Professor Silliman mentions that in June, 1823, he crossed the Hudson at Cattskill, in company with a friend, and was proceeding in a carriage by the river along the road, which is there very narrow, with the water on one side, and a steep bank, covered by bushes, on the other. His attention at that place was arrested by observing the number of small birds, of different species, flying across the road and then back again, and turning and wheeling in manifold gyrations, and with much chirping, yet making no progress from the particular place over which they fluttered. His own and his friend's curiosity was much excited, but was soon satisfied by observing a black snake of considerable size, partly coiled and partly erect from the ground, with the appearance of great animation, his eyes brilliant, and his tongue rapidly and incessantly brandishing. This reptile they perceived to be the cause and centre of the wild motions of the birds. The excitement, however, ceased as soon as the snake, alarmed by the approach of the carriage, retired into the bushes; the birds did not escape, but, alighting upon

the neighboring branches, probably awaited the re-appearance of their cruel tormentor and enemy.

I have read of a man residing in Pennsylvania, who, returning from a ride in warm weather, espied a black-bird, and a large blacksnake viewing the bird. The latter was describing circles, gradually growing smaller, around the snake, and uttering cries of distress. The bird had almost reached the jaws of its enemy, when the man with his whip drove off the snake, and the bird changed his note to a song of joy.

A gentleman himself told me that while travelling one day, by the side of a creek, he saw a ground-squirrel running to and fro between the creek and a great tree a few yards distant. The squirrel's hair looked very rough, which showed he was much frightened; and his returns being shorter and shorter, my friend stood to observe the cause, and soon discovered the head and neck of a rattlesnake pointing directly at the squirrel through a hole of the great tree, which was hollow. The squirrel at length gave over running, and laid himself quietly down, with his head close to the snake's. The snake then opened his mouth wide, and took in the squirrel's head, when a cut of the whip across his neck caused him to draw in his head, which action, of course, released the squirrel, who quickly ran into the creek.

DOCTOR. Dr. Good mentions the curious fascinating power the rattlesnake, in particular, has over various small animals, as birds, squirrels, and leverets, which, incapable of turning off their own eyes from those of the serpent-enchanter, and overpowered with terror and amazement, seem to struggle to get away, and yet progressively approach him, as though urged forward or

attracted by a power superior to that of natural instinct till at length they enter, apparently without foreign force, into the serpent's mouth, which had all along been open to receive them, and are instantly devoured. The larger kinds of various snakes have undoubtedly a similar power. Dr. Barrow, in his Travels into the interior of South America, asserts this to be a fact, well known to almost every peasant in that quarter of the world; and Vaillant, in his Travels into Africa, affirms that, at a place called Swortland, beholding a shrike in the very act of fascination by a large serpent at a distance, the fiery eyes and open mouth of which it was gradually approaching, with convulsive tremblings, and the most piteous shrieks of distress, he shot the serpent before the bird had reached it; still, however, the bird did not fly, and on taking it up, it was already dead, being killed either by fear or the fascinating influence of the serpent, although, upon measuring the ground, he found the space between them to be no less than three feet and a half. There is a case, much in point, inserted in one of the early volumes of the Philosophical Transactions, which states that a mouse, put by way of experiment into a cage in which a female viper was confined, appeared at first greatly agitated, and was afterward seen to draw near to the viper gradually, which continued motionless, but with fixed eyes and distended mouth, and at length entered into its jaws, and was devoured.

LADY. If any of the lower animals could be fascinated by man, I should think that would be a certain proof, not only of the reality of the power, but that it did not exert its influence through the imagination.

DOCTOR. Animals of late days have been frequently

fascinated for purposes of experiment, and a universal rigidity of the muscles produced to such an extent as to cause them to resemble pieces of statuary, so that the animal could be taken up and its whole weight supported by one foot—and this state produced and continued at pleasure. Mr. Bruce, the great African traveller, distinctly states, from minute personal observation, that all the blacks in the kingdom of Sennaar, whether Funge or Nuba, are perfectly armed by nature against the bite of either scorpion or viper. They take the horned serpents in their hands at all times, put them into their bosoms, and throw them at one another, as children do apples or bells; during which sport the serpents are seldom irritated to bite, and when they do bite, no mischief ensues from the wound. The influence exerted upon them is so great that they are scarcely ever able to attempt any resistance, even when eaten up alive, as Bruce assures us he has seen them, from tail to head, like a carrot. He also positively affirms that they constantly sicken the moment they are laid hold of, and are sometimes so exhausted by this invisible power or fascination, as to perish as effectually, though not as quickly, as though struck by lightning. “I constantly observed,” says he, “that, however lively the viper was before, upon being seized by any of these barbarians, he seemed as if taken with sickness and feebleness, frequently *shut his eyes*, and never turned his mouth toward the arm of the person that held him.”

This power is often used by man to disarm the fury of the most enraged or vicious quadrupeds. This is peculiarly seen at times in the case of watchdogs, over whom some house-breakers have found out the secret of exercising so seductive and quieting a power as to keep

them in a profound silence while the burglary is committed. Lindecrantz, of Sweden, tells us that the natives of Lapland and Dalarne are in possession of this secret generally, insomuch that they can instantly disarm the most furious dog, and oblige him to fly from them, with all his usual signs of fear, such as dropping the tail, and becoming suddenly silent.

Grooms are sometimes found possessed of a similar power over horses. Mr. Townsend gives a striking anecdote to this effect in his account of James Sullivan. The man—an awkward, ignorant rustic of the lowest class—was by profession a horse-breaker, and generally nicknamed the *whisperer*, from its being vulgarly supposed that he obtained his influence over unruly horses by whispering to them. The actual secret of his fascinating power, it is very likely, was unknown to himself, for it died with him, his son, who was in the same occupation, knowing nothing of it. It was well known to every one that, however unbroken or vicious a horse or even a mule might be when brought to him, in the short space of half an hour he became altogether passive under his influence, and was not only entirely gentle and tractable, but in a very considerable degree continued so, though somewhat more submissive to himself than to others. There was a little mystery in his plan, but unquestionably no deceit. When sent for to tame an unruly horse, he ordered the stable-door to be shut upon himself and the animal alone, and not to be opened until a given signal. This singular intercourse usually lasted for about half an hour; no bustle was heard, or violence seemingly had recourse to; but when the door was opened, on the proper sign being given, the horse was always seen lying down, and the fascinator by his

side, playing with him familiarly as a child with a puppy. Mr. Townsend once saw his skill tried on a horse that could never be brought to stand for a smith to shoe him. The day after Sullivan's half-hour lecture, he went, not without some incredulity, to the smith's shop with many other curious spectators, who were eye-witnesses of the complete success of his art. This, too, had been a troop horse, and it was supposed, not without reason, that after regimental discipline had failed, no other would be found availing. He observed the animal seemed afraid whenever Sullivan either spoke to or looked at him. In common cases, the mysterious preparation of a private interview was not necessary, the animal becoming tame at once.

LADY. Has no person ever attempted to explain this wonderful influence? for the facts seem to have been known a considerable time.

DOCTOR. Yes, though some have doubted the facts; for, as Dr. Good remarks, in the marvellous it is always far more easy to doubt than to determine. By far the best explanation, and one with which I entirely coincide, is that of Major A. Gordon, of South Carolina, the rationale of which I will enter upon after a little time. In a paper of his, he attributes the fascinating power supposed to be possessed by serpents, to a vapor which they secrete, and can throw around them to a certain distance at pleasure. He advances various facts in support of this opinion, and observes that the vapor produces a sickening and stupefying effect; and alludes to a negro who, from a peculiar acuteness of smell, could discover a rattlesnake at a distance of two hundred feet, when in the exercise of this power, from his smell being effected by it, and who, on following such

indication, always found some animal drawn within its vortex, and struggling with its influence.

LADY. Does man possess the power of throwing off a similar vapor?

DOCTOR. Undoubtedly; the instruments in both are the same, and these instruments I will take occasion to describe to you, and explain their mode of operation.

LADY. I should think it possible, in that case, for animals, in some instances, to fascinate man.

DOCTOR. We have well-attested instances of their doing so. I remember reading, some time since, of a man walking out in his garden, who accidentally saw a snake in the bushes, and, observing the eyes gleam in a peculiar manner, watched it closely, but soon found himself unable to draw his own eyes off. The snake, it appeared to him, soon began to increase immensely in size, and assume, in rapid succession, a mixture of brilliant colors. He grew dizzy, and would have fallen in the direction of the snake, to which he felt himself irresistibly impelled, had not his wife come up, and, throwing her arms around him, dispelled the charm, thus saving him from certain destruction. There are too many of these stories to mention a tithe of them; so I will conclude with but one more that is very generally known. Two men in Maryland were walking together, when one found fault with his companion because he stopped to look at something by the road-side. Perceiving he did not heed him, he returned to draw him along, when he perceived the other's eyes were fixed upon a rattlesnake, which had its head raised and eyes glaring at him. The poor fellow was leaning toward the snake, and crying piteously, in a feeble tone, "He will bite me! he will bite me." "Sure enough he will," said his friend, "if you

do not run off. What are you staying here for?" Finding him dumb to all entreaties, he struck down the snake with a limb of a tree, and pulled his companion violently away. The man, whose life was thus providentially saved, found himself very sick for some hours after his enchantment.

LADY. I must express my astonishment at the new light in which you have presented the whole subject to my mind. There can possibly be no cavilling at any of the positions you have assumed.

DOCTOR. I give you the result of my own conclusions, after considerable study, and, from what has been shown, I think we may prove four things:—

First: That man can fascinate man.

Second: That man can fascinate the lower animals.

Third: That the lower animals can fascinate one another.

Fourth: That the lower animals can fascinate man.

Townsend remarks, that if we wish to seek for a general instance of the power one human being possesses over another, with regard to the influence of fascination, we have only to look at the effects produced when young persons sleep with old. It is recorded of the Psalmist, King David, that, when he became very old, he got a young damsel to sleep with him, that, from her vigorous life, he might obtain a supply to lengthen out his days. Some painful instances of this kind came under his own observation—one in which the future well-being of a person very dear to him was compromised; and he was acquainted with an infirm old lady, who was so perfectly aware of the benefit she derived from sleeping with young persons, that, with a sort of horrid vampirism, she always obliged her maid to share the same

bed with her; thus successively destroying the health of several attendants.

The celebrated German physiologist, Hufeland, has remarked the longevity of schoolmasters, and attributes it to their living so constantly amid the healthy emanations of young persons.

It may be well to mention, in this connection, the fact that savage nations, generally, practice fascination. They rub or pat one another when fatigued, and it refreshes. The wife of one of the Sandwich Island missionaries, on a visit to this country, some years since, exclaimed, on returning from a long and tiresome walk, that had completely exhausted her strength: "If I was home, the native women, by patting me, would soon give me complete relief from this weariness, and make me feel as lively as ever." The rites and gestures of savage magicians, the medicine-men of the wilds, over their patients, which so much alarm travellers, are nothing more than fascinating passes to cure disease—a method, too, that very generally succeeds.

Even among animals, it has been found that the young cannot be too closely associated with the old without suffering detriment. Young horses, standing in a stable beside old ones, become less healthy, and, in time, weak and sickly.

LADY. And you say these wonders can all be explained, in accordance with what is already known of the laws of life?

DOCTOR. With the utmost certainty.

LADY. But do you really think it possible that I can ever understand them? I am fearful that I have not strength enough of mind to pry into such mysteries.

DOCTOR. The subject is not difficult, by any means,

and a moderate degree of perseverance is only necessary to master the whole. If you like, we will spend a little time to-morrow in its examination, and, in the meanwhile, I will leave you Mrs. Abdy's lines on fascination, which prove, in a pleasing enough manner, that there can be some poetry in the subject:—

He stands before a gathered throng, strange knowledge to unfold,  
 Charming the dazzled fancy like the fairy-tales of old;  
 Yet must he brook the idle jest, the cold and doubting sneer,  
 He hath no beaten path to tread, no practised course to steer.

The wondrous science that he strives to bring to life and light,  
 Is softly, faintly breaking from the misty shades of night;  
 And scoffing prejudice upbraids the pure and genial ray,  
 Because it doth not burst at once to bright and beaming day.

He tells the healing benefits that through this power arise;  
 How sweet and soothing sleep may seal the weary mourner's eyes  
 How raging madness may be checked; how sufferers may obtain  
 The boon of deep oblivion from the keenest throbs of pain.

Anon he dwells on loftier themes, and shows how mind may claim  
 An empire independent of the still and slumbering frame.  
 Can ye doubt the proofs, ye careless throng, submitted to your view  
 Can ye hold them in derision, because yet untried and new?

Know that improvements ever wend a tardy course on earth;  
 And though Wisdom's mighty goddess gained perfection at her birth  
 Her children reach by slow degrees the vigor of their prime,  
 For the wisdom of this lower world requires the growth of time.

None wish ye on the statements of a single voice to rest;  
 The marvels ye have witnessed ye are urged to prove and test;  
 Survey them in their varied forms—inquire—observe—inspect—  
 Watch—meditate—compare—delay—do all things but neglect!

If ye bear in mind the lessons that to-day ye have been taught,  
 Ye need not lack materials for intense and stirring thought;  
 And my simple lay can little aid an orator's discourse,  
 So gifted with the energy of intellectual force.

But I ask ye if your cherished ones sharp anguish should endure  
Which the stated arts of medicine had in vain essayed to cure ;  
Would it not grieve ye to reflect ye might those pangs allay,  
But that, jestingly and mockingly, ye cast that means away ?

Mistake me not—I prize not aught, however great or wise,  
If held not in subjection to the God who rules the skies ;  
To me all knowledge would be poor, all splendor would be dim  
All boons unsafe, all joys untrue, unless derived from Him.

And if eagerly this wondrous power I witness and approve,  
It is because I know no bounds to Heaven's amazing love.  
And I cannot, by the pedant rules of critic caution, scan  
The depths of those exhaustless gifts His mercy pours on man

## CONVERSATION II.

### DISCOVERY OF FASCINATION.

DOCTOR. I wish to prove, in our conversation to-day that Adam was perfectly aware of the power of fascination, together with clairvoyance, and those other mysteries that astonish so much the people of the present day.

LADY. Why did he not communicate this knowledge to his descendants, so that the matter might become universal and undoubted?

DOCTOR. I cannot answer better than in the words of that veritable historian, John Bunyan, who tells us that King Shaddai, in the sixth day of the year one, built in the country of Universe a fair and delicate town, called Mansoul, and endowed it with corporate privileges—a town for building so curious, for situation so advantageous, that there was not its equal on the face of the whole world. Yea, it was so goodly, when first built, that the gods, at the setting up of it, came down to sing for joy. It was so mighty as to have dominion over all the country round about it; for all were required to acknowledge it for their metropolitan, and do it homage. It had commission and power from the king to demand service of all, and also subdue those who in any way opposed it.

There were certain gates in Mansoul, by which access could be gained to the celestial country round about it, and communion held with the messengers who were

constantly coming and going from the court of Shaddai. The inhabitants took full advantage of all their glorious privileges, and conversed with the gods freely, so that, all the time they continued under the dominion of its builder, nothing but sounds of joy and praise were heard; but when, as is well known, they rebelled against his government, and swore allegiance to Diabolus, his enemy, a dreadful change came over them, and, among the other enjoyments of which they were bereft, the gates were closed that opened to the celestial country, and no communication through them, unless under extraordinary circumstances, ever allowed. As the gates became disused, they were gradually forgotten by the many, and, for thousands of years, all remembrance of them lost.

LADY. Why, you do not surely think that heaven is around us, and that, if we could see through those gates, we would behold its glories at once? I have always entertained the idea that the celestial country was an immense distance off, and, when we died, there was a long journey to travel before it could be reached.

DOCTOR. That the material world is contained in the spiritual, admits of direct proof, and a little reflection will convince us at once of the fact. You know we are told, that the angels that encamp round about them that fear the Lord, do always behold the face of our Father which is in heaven. And were our senses not holden until the time when we shall be caught up to meet the Lord in the air, we might see the cloud of witnesses surveying our heavenward race, and behold, as Stephen did when he was martyred, heaven opened, and Jesus sitting at the right hand of God.

LADY. I must confess it would please me better to

find some certain proof of this in the Bible, and also of some one who had seen it, that would be immediately convincing.

DOCTOR. You will be surprised, then, by an attentive examination of the sixth chapter of 2 Kings. When Elisha's servant perceived his master's house surrounded by the warriors of the king of Syria, who evidently came with a hostile intent, he was extremely frightened, and cried, "Alas, my master! how shall we do?" And Elisha answered and said, "Fear not; for they that be with us are more than they that be with them." But as this did not quiet him, Elisha prayed, and said, "Lord, I pray thee, open his eyes, that he may see." And the Lord opened the eyes of the young man, and he saw; and, behold, the mountain was full of horses and chariots of fire round about Elisha.

LADY. I am satisfied, but cannot help expressing my astonishment at the clearness of all the proofs you bring forward to sustain your positions. Do you suppose they practised fascination before the deluge?

DOCTOR. Though they might be aware of the existence of the celestial gates, yet that the mode of opening them, and also producing curative influence, was known before the flood, it is, of course, out of our power to determine; but that it was soon manifest after that period, is undoubted.

Though the immediate descendants of Noah were aware of the being, and some of the attributes, of Jehovah, yet their knowledge, handed down to posterity only by tradition, became corrupt, and the invisible and eternal One was lost sight of in the homage paid to things of wood and stone; the charge of which, involving, as it did in their eyes, communion with superior

powers, was the most important office in the nation, and one, too, which it was the earnest endeavor of all to obtain. Now, who so likely to obtain it as those who pretended to be especial favorites of the gods themselves, proving their assertions in the most satisfactory manner by the cure of diseases. Accordingly, we find the heathen priests were the first fascinators.

LADY. But how did they discover the mode of doing it?

DOCTOR. An attentive examination of the subject has brought me to a conclusion that, most likely, will very much surprise you. I think the requisite knowledge was imparted by Satan himself, either in a direct manner, or by prompting the mind to a series of experiments that led to the discovery. He did this to increase his influence, so that a chosen few, on whom he could depend, might guide the many in the ways of destruction. Proof of this, I think, can be found in the fact, naturally abhorrent to humanity—for man has been defined to be a religious animal—that all barbarous nations pay more homage to the Spirit of Evil than they do to the Spirit of Good. And, as a matter of course, their rites of worship are of the most revolting and blood-thirsty description; extreme licentiousness characterizing their devotions, as well as suspension by hooks, etc., and the murder of infants and adults.

LADY. If fascination is a power imparted by Satan why is it not sinful to have recourse to it?

DOCTOR. He did not impart the power, but merely showed the fact of its existence. It is a gift from Jehovah, and, as such, with all thankfulness, we make use of it to subserve his honor and glory. The Lord makes the wrath of man to praise him as well as the wrath of

Satan, who will no doubt find it in the end, like many other of his projects, one of the most efficient means of his overthrow.

Uniting, as the heathen magi did, the offices of priest and physician, as well as king, (which last office they afterwards voluntarily separated, though they kept it subordinate to their own,) and the number of known remedies being then very few, they were mostly compelled to rely on fascination for giving relief in sickness. Some of them possessed this power in so extraordinary a degree, and had their fame so widely extended, as to be deified after death; having idol statues shaped in their likenesses, to which divine honors were paid, the qualities for which they were thus honored being symbolized by an additional number of arms. Proofs of this may be seen at the present day in the images of the gods of India; Vichenow, Chiven, Parachiven, Ravenna, and many others, have four, six, and twelve arms, all presenting the hands open, with the palms inclining downwards, the fingers being in the most approved fascinating positions of the present day.

It is probable that the immediate application of the hands was reserved for special purposes, curiously-shaped rods of various kinds being mostly used to direct the influences; thus the caduceus of Mercury, it was supposed, had the power of putting any one whom it touched to sleep; with it he deepened the slumbers of Argus, after lulling him to a gentle repose by the sound of his lyre, preparatory to cutting off his head. That he sometimes dispensed with its use is evident from a passage in Plautus, which makes him say of Sosia: "What if I stroke him gently with the hand so as to put him to sleep?" May no the regal sceptre have been

used, before the separation of priest and king, for the same purposes as the caduceus of Mercury, and be, as well as the *royal touch* for the cure of scrofula, the last remains of the former union of offices ?

LADY. Nothing can be more probable in this view of the subject.

DOCTOR. The magi, or wise men of India, the most ancient fascinators of whom profane history gives any account, practised mostly gestures and manipulations in curing disease, though they often prescribed herbs.

LADY. Is any particular account given of their curing by fascination ?

DOCTOR. Philostratus mentions the case of a young man, whom a lion had injured in the knee to such an extent as to keep him in constant agony, and who went to the magi to obtain relief. They rubbed him gently with their hands at intervals during a few days, when he returned home perfectly cured.

Next come the priests of Egypt, who took the greatest possible advantage of the secret, and made the knowledge of it the last and holiest rite of their ancient magic, in the initiation of candidates. So celebrated were they, that many persons, taking advantage of our Saviour's temporary residence in Egypt, professed to account for his miracles, by accusing him, according to Arnobius, of being a magician ; of making things by secret means ; and of stealing, from the sanctuary of the Egyptian priests, the names of the powerful angels, and their occult disciplines.

Patients flocked to these Egyptians from all parts of the world. Their mode of proceeding was to previously prepare them by means of fasting and prayer, and then wrap them up in goat skins. After the process of

fascination they were left to wait for sleep and prophetic visions ; in some instances these did not occur, but to provide for the emergency, there was a company of priests who slept for them, and revealed the dreams. A record of each case, telling the name of the person, the disease and the remedy, was engraved on the temple ; and these inscriptions, we are told, were, for a long while, the sole record of practical medicine. Five of these have been translated, the following two of which will give an idea of what they were :

The god, in a nocturnal apparition, ordered the son of Lucius, who was attacked with a hopeless pleurisy, to take from the altar some cinders, and, mixing them with wine, make an application to the affected side. He was saved ; he thanked the god, and the people wished him happiness.

A blind soldier named Valerius, after consulting the god, received for answer : “Go in the temple, mix the blood of a white fowl with honey, and wash your eyes with it during three days.” He recovered his sight, and thanked the god before the people.

LADY. What does it mean when it says they waited for visions ?

DOCTOR. I must take a rather circuitous mode of answering your question. We must now study a little physiology, and, as I will avoid all hard names, and endeavor to simplify as much as possible, you will not find it difficult to follow me in the explanations.

Man has three perfectly distinct elements in his composition—Matter, the Life Principle, and the Soul or Immortal part.

LADY. I thought life resulted from the union of all the different organs, and that their being placed in

just such relations made the machine work harmoniously.

DOCTOR. That has been, and even now is, the opinion of a great many, but when the system is growing, and also in disease, some parts are always out of relation to the rest, and the proportion and balance thus utterly destroyed ; and did life only result from the union of all, it must cease in such cases at once to exist. The inductive and only true method of reasoning refers the various operations going on within the body to a common cause, which source of action is called the life or vital principle.

LADY. But how is this cause discovered ?

DOCTOR. By the phenomena it presents to us ; we can perceive these phenomena only through the agency of Matter, for which purpose alone, it would seem, matter was created.

LADY. As matter is governed by laws of its own, it appears to me that, in experimenting upon it, you would only be finding out those laws.

DOCTOR. The laws of matter, which are known as the chemical and mechanical forces, differ entirely from those manifested by it when organized.

LADY. Still I have not a clear idea of the vital principle. When I would separate it from the soul and matter, the two last continually force themselves upon my mind, and make the whole subject very confused. If it was only possible to observe the vital principle acting with matter alone, without the soul's interference, I could easily understand it.

DOCTOR. Your wish can at once be gratified, by looking at the geranium on your window sill. Vegetables have only the vital principle and matter ; but

perhaps I cannot do better than refer you to an article on this subject prepared by myself for a literary magazine some years ago. Will you read it aloud?

LADY. It was remarked by a philosopher, some years ago, that it was scarcely possible to tell the difference between a dog and a rose. This statement, to the greater number of my readers who have not reflected on the subject, will appear hardly probable. Anecdotes of the sagacity and faithfulness of dogs are known to all; and I doubt not many of them in our city are possessed of more knowledge and practical information, and are better members of society, than the swarms of idle and vicious youth who crowd our streets. How, then, with such facts before him, could Bonnet make such an assertion? I will tell you. Our ideas of the intelligence of animals are derived from the proofs of design we see them exhibit. Having a certain end in view, they will choose, with the most astonishing discrimination, out of a number of means, the ones best adapted to their purposes, and contrive to use these in such a way as to be almost uniformly successful. Natural history is made up of facts in support of this position. Our next inquiry will be to find out whether plants ever show such instances of choice and foresight and a little examination will prove that most unquestionably they do.

Strawberries, planted on moist ground, give out no runners; but, on placing them in a dry soil with water at some distance, we find runners travelling around until they discover it, and then remaining—a living aqueduct—to supply the plant. If these runners are moved round to the other side, they will soon regain their original position with unerring certainty. If you turn

the under surface of a rose-leaf upward, it will, in a little while, commence a return movement, gently twisting, with a kind of effort, on its peduncle, as on a sort of pivot. The Abbé Martin transplanted a rose-tree from one part of his garden to another, for the purpose of experiment. To the right of the new position, the soil was hard, dry, and sterile; to the left, moist, rich, and tender. The roots, at first, radiated alike to the right and left. But he soon discovered that the roots, which had advanced to the right, bent backward toward the fertile and mellow earth, as if divining that their companions at the left had found better pasture. To prevent their intercepting nourishment intended for other plants, he dug a ditch to stop the farther advancement of the roots. Arrived at the ditch, they plunged perpendicularly below its bottom, ran around and advanced anew toward the point whence they had discovered the rich soil.

Instances of their foresight in guarding against excessive heat, wind, and rain, are equally numerous. In France, the peasants train the carlina by their doors, to serve as a barometer; its open flowers show clear weather—but closed, an abundance of rain. The shepherd's weather-glass has the same property. If it does not show its face to greet the sun on his ascension, the sheep remain in the fold on that day. The four-o'clock opens its flowers regularly every afternoon at that hour, to show the laborer that, if he cannot afford a watch, nature will provide him with the means of knowing the hour without expense. Such examples certainly prove a faculty of judging according to the sense in plants.

And now the inquirer asks, "What is the nature of this principle, and in what does it differ from chem-

ical affinity or attraction?" A perfect exemplification of this difference is given in the history of its creation. And God *made every plant of the field before it was in the earth, and every herb of the field before it grew.* Dry land and seas, by this time, were divided, and the forces of the inorganic world in operation. These forces are called pullers-down of nature. Exposed to their influence, mountain and hill crumble to dust; and it is owing to their agency that volcanoes and earthquakes destroy cities and swallow up nations. This is due, probably, to the shape of the ultimate atoms, which, fitting into each other in different ways, occasion perpetual change.

But on the third day, a controlling influence, a new set of powers, the builders-up of nature, appear—created, in kind and degree, different from matter, yet only manifesting their presence to us in connection with it. So far from allowing these atoms to unite according to their affinities, which would soon destroy nature, they exercise the most despotic sway, controlling them to the last. The chemical forces are in perfect subjection while life remains; but the moment it departs, dust returns to dust, the work of destruction begins, and the body vanishes into air.

A beautiful example of this opposition is shown by seeds, which are the simplest independent forms of the union of the life power with matter. Take two of these, and, having destroyed the vitality of one of them by passing an electric spark through it, place both in warm and moist earth. The dead seed, surrounded by all the conditions favorable to its decomposition, is speedily resolved into its native elements, while the living one makes slaves of its enemies, rapidly sprouts up amid the surrounding desolation, and hangs out its flowery banners as tokens

of victory. Seeds retain life, almost any length of time. I noticed, this week, an account of an abundant harvest reaped from the growth of seeds found in an Egyptian mummy, over two thousand years old.

A seed, finding itself in a warm moist place, suddenly becomes aware that it has work to do, and sets about it without delay. The seed-case bursts, a stalk and leaves appear above, while the root, sending off filaments, remains below; at the end of each of these little filaments is a spongiole, or bundle of leech-like mouths. These suck from the soil whatever they require, and then act the part of a stomach in instantly digesting it. A series of ascending vessels, or veins, are ready to carry it to the leaves, to be further elaborated; when it arrives there, its oxygen is given off, and a supply of carbonic acid, obtained from the air, is combined with it; and the pure blood, or sap, is carried by the arteries to every part, to supply its necessities and form compounds.

Plants are manufacturing establishments; some make the essential oils—as the cinnamon, sassafras, and rose; others salts—as the sorrel, oxalic acid; the Peruvian bark-tree, quinine; and the willow, salacine. Many a devised shrub has powers more deadly and dangerous than a powder magazine; the laurel and peach yield prussic acid, one drop of which will destroy life; and travellers tell us that the atmosphere of the upas-tree is fatal for miles around it.

The vital principle of each plant, being separate and independent in itself, explains the reason why two of them—the one a virulent poison, the other a table vegetable—will grow side by side, and draw their nourishment from the same source. It also shows the error of

our modern agriculturists, who treat these living existences, endowed with a power of choice and foresight, as if they were tubes, imbibing whatever was placed near them by capillary attraction.

Man resembles a torch, in requiring oxygen to keep him burning or alive; in return for this he throws out carbonic acid, which to him is a virulent poison. Now, what prevents this gas accumulating in the air, and destroying the animal kingdom; and from what source shall the supply of oxygen be derived to answer our continual demand? Only from the respiration of plants; which we may now see not only supply us with food, but are absolutely necessary for our daily existence.

When the new Custom House and Merchant's Exchange were erecting, they were the daily resort of thousands who flocked to witness their gradual progress; yet how much more wonderful is the building of a vegetable palace! Unseen workmen are urging it forward with untiring industry; column after column forms; story after story rises; staircase and hall and gallery are soon fixed in their positions. We think it a great thing to have the Croton water brought into our houses; yet in every one of these little chambers, there are pipes to carry food and water and take away the residue. The vegetable house is made of the finest wood, is elastic, and capable of bending to the breeze; and, to defend it from the rain, covered either with water-proof varnish, or stuccoed over with the rarer porcelain. And all this time the spectator is not disturbed by noise or dust, the greater part of the work being carried on under ground.

When all is completed, no monarch on earth could obtain such a residence. The very paint of its walls, though

exposed to all kinds of impurity, is of such rare quality that the king's stateliest robes cannot match it. "Consider the lilies of the field ; they toil not, neither do they spin ; yet Solomon, in all his glory, was not arrayed like unto one of these." Nay, kings are even glad to obtain its essences at second hand, to perfume themselves.

The name of the inhabitant who owns the house is written on a broad door-plate of surpassing beauty, so that we can tell one from another. Books have been written on the language of these door-plates or flowers, and it is said that angels, by their means, write mysterious truths on hill and field. The poet, from the earliest ages, has held the most sweet and loving converse with them. But to the physician, the priest of nature, they speak in a higher and more exalted strain. In them he reads the success of his mission. By their means he can conquer the most obstinate diseases. That nothing has ever been formed for show alone, the truly useful will always be the truly beautiful. That when their uses are perfectly understood, the fond dream of the Rosicrucian shall not want verification : the bone shall continue firm and the muscle strong ; the eye of youth retain its lustre ; and as century after century passes away, the lapse of time shall but witness our triumph over the pullers-down of nature, and our increase in wisdom and love. These happy children of Flora, that have retained undimmed the influence of their Creator's smile, when first he pronounced his work good in Eden, shall receive added radiance and more dazzling glory as they again behold His face in the dawning morn of the millenium

## CONVERSATION III.

## PHYSIOLOGY.

DOCTOR The body is the house of the soul: in an upper story, confined to an inner chamber, closely imprisoned, and having no communication with the external world, except through the medium of the life principle, resides our immortal being.

LADY. But there is no mention of a double life in the account of man's creation. Genesis ii, 7, says that the Lord God formed man out of the dust of the ground, and breathed into his nostrils the breath of life; and man become a living soul.

DOCTOR. The Hebrew word, in that passage, for life, is used in the plural; so that your objection but confirms the physiological view. It should read, breathed into his nostrils the breath of lives.

LADY. Is the life principle immortal as well as the soul?

DOCTOR. I believe it is, but only in consequence of its connection with the soul, to which it is subservient. It is an intermediate between spirit and matter, presenting to us certain phenomena, by which we are enabled to recognize its possession of seven distinct properties; these are:—

VITAL AFFINITY

VIVIFICATION.

MOBILITY.

IRRITABILITY.

INSTINCT.

SYMPATHY.

SENSIBILITY.

The first five are common to all animated nature—plants as well as animals; the last two, in consequence of requiring a nervous system for their development, belong only to animals.

Vital affinity and vivification are used in the organization of matter. Mobility is the power of originating motion, as shown in the circulation of the sap and shrinking of the mimosa. Irritability, or excitability, is the power of giving and receiving impressions—of acting upon matter, and of being, in turn, acted upon by it—and is one of the most important of all. The instinctive property of plants has been already mentioned; that of animals needs no illustration. Sympathy and sensibility possess names sufficiently explanatory of their powers.

LADY. But have not animals a separate principle of instinct besides a life power?

DOCTOR. They have not. Coleridge, who is the best authority on this subject, remarks that instinct is the *power of selecting and adapting means to proximate ends*; and illustrates the point by taking the stomach of a caterpillar, which, he observes, has the power of selecting the appropriate means (that is, the assimilable part of the vegetable *congesta*) to the proximate end—which is, the growth or reproduction of the insect's body. It does this by the vital power of the stomach.

From the power of the stomach, he passes to the power exerted by the whole animal; traces it, wandering from spot to spot, and plant to plant, till it finds the appropriate vegetable; and again, on this chosen vege-

table, he marks it seeking out and fixing on the part of the plant, bark, leaf, or petal, suited to its nourishment—or (should the animal have assumed the butterfly form) to the proper place of depositing its eggs, and making provision for the sustenance of the little animals that shall emerge from them. The power, thus exhibited, of selecting and adapting means to proximate ends, according to circumstances, he considers as a higher species of adaptive power, and calls it Instinct.

Then, citing anecdotes from the writings of zoologists, he proves in the lower animals a power of selecting and adapting the proper means to the proximate ends, according to varying circumstances; and this yet higher species of adaptive power he calls Instinctive Intelligence.

In addition to these, he says that he finds one other character common to the highest and lowest; namely, that the purposes are all manifestly predetermined by the peculiar organization of the animals, and both actions and purposes are in a necessitated reference to the preservation and continuance of the particular animal, or the progeny. There is selection, but not choice; volition, rather than will.

LADY. I suppose wild men have their instinctive faculties best developed, and that man, in proportion as he becomes civilized, or under the dominion of reason, loses those powers.

DOCTOR. You must remember that the manifestations of instinct depend on the peculiar organization of the animal. Man is not fitted to live in a wild state, for then he is, of all animals, the most helpless. But Coleridge speaks directly on this point, and I will give you his words, premising that he defines understanding as

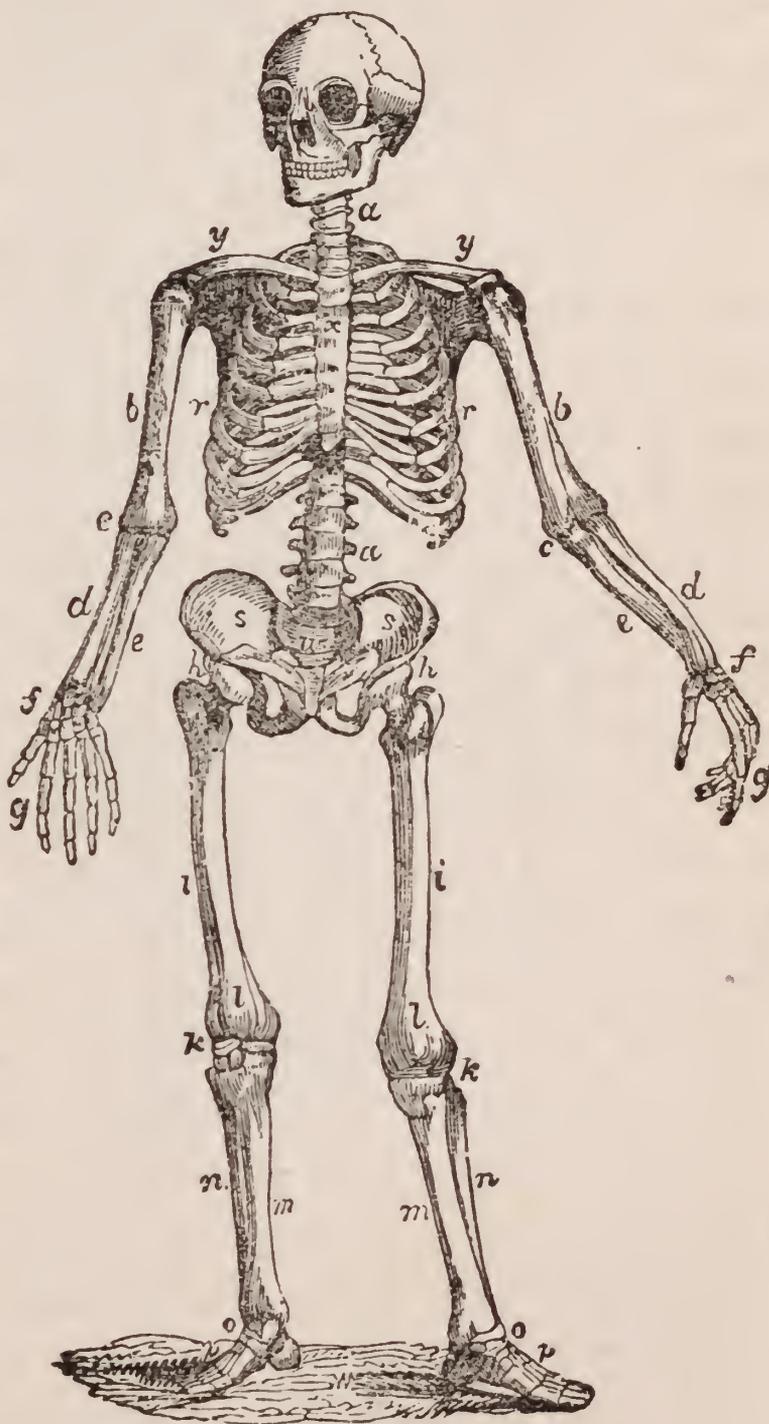
the faculty that judges by the senses. He says, that if we suppose the adaptive power, in its highest state, (instinctive intelligence) to co-exist with reason, free-will, and self-consciousness, it instantly becomes understanding; in other words, that understanding differs, indeed, from the noblest form of instinct—not *in itself, or in its own essential properties*, but in consequence of its co-existence with far higher powers, of a diverse kind, in one and the same subject. Instinct, in a rational, responsible, and self-conscious animal, is understanding.

Having now reviewed the characters of the servants in the house of the soul, we will glance at their offices in the building, and at the building itself. In comparing the human frame to a self-moving house, the bones and muscles should be represented as beams and pillars; the stomach as the kitchen; the lungs as the ventilator, etc., etc. The house must be furnished with bells and wires to convey news, receive messages, and connect all the parts together into a common whole; such offices are performed by the senses.

The skeleton of the human body is composed of two hundred and forty-eight bones; each of which is modelled with the utmost care for the various offices it has to perform; and so close a relation does one bone bear to another, that an anatomist can tell from seeing one, or in some cases, even a part of one, with the utmost certainty, the general form and habits of the animal to which it belonged. A happy illustration of this fact was shown some years since in England, by Mr. Conybear, a philosopher of considerable eminence. Having found a few bones of an extinct species of animal, he set himself to work to construct the perfect skeleton. Little attention was paid to his performance at the time,

but some years afterward, a complete skeleton of that singular animal, the Plesiosaurus, was discovered, and found almost exactly to correspond with Mr. Connybear's drawing!

[*a a*, spinal column capped by the skull; *r r*, ribs connected by gristle (cartilage,) to the breast bone, *x*; *y y*, collar bones (clavicles); *b*, the arm bone (humerus); *c*, the elbow; *d*, the radius; *e*, the ulna; *f*, the wrist joint (composed of 3 small bones, in two rows); *g*, the finger bones (phalanges, 19 bones); *s s*, hips or pelvic bones, joining *w*, the sacrum; *i*, the thigh bone united to the trunks of the body by the joint *h*; *l*, the knee-pan (patella); *k*, the knee; *m*, the tibia, and *n*, the fibula, both small bones of the leg; *o*, ankle, composed of 7 bones; *p*, toe bones (phalanges, 19 bones).]



BONY SKELETON.

The back bone and skull are by far the most important among the bones; they are the caskets in which are deposited the spinal marrow and brain—indeed, to

protect the nervous system from injury seems, in every instance, the first intention of the formation of a skeleton.

The spine, or back bone, is composed of twenty-four smaller bones, between the most of which is a layer of gristle, so that while the indispensable condition of great strength is preserved, a degree of motion is allowed. The weight of the upper parts of the body, presses down this gristle during the day, thus accounting for the singular fact that persons are always shorter at night than in the morning soon after getting up. The loss in height in different individuals varies from half an inch to one or two inches.

LADY. I know a gentleman who habitually loses in height from one-half to three-quarters of an inch every day; and, while speaking on the subject, told me an anecdote relative to the practice pursued by British recruiting sergeants, who, when they found a man willing to enlist, not more than half an inch under the requisite height, made him lie in bed and fed him well for two or three days, by which time his gristle became well swelled out, and he was almost invariably sure to pass muster when immediately presented at the station house.

DOCTOR. Every little protuberance and ridge we see on bones give origin or hold to muscles, which attach themselves to them by means of strings or tendons. There are nearly five hundred distinct muscles named by anatomists in the human body. This is probably underrating the real number, for a caterpillar has over four thousand muscles, and there are one thousand in the proboscis of an elephant. Muscles are composed of layers of cellular tissue, the compression of which at the ends forms tendons; while the cells in the middle are filled with fibrin.

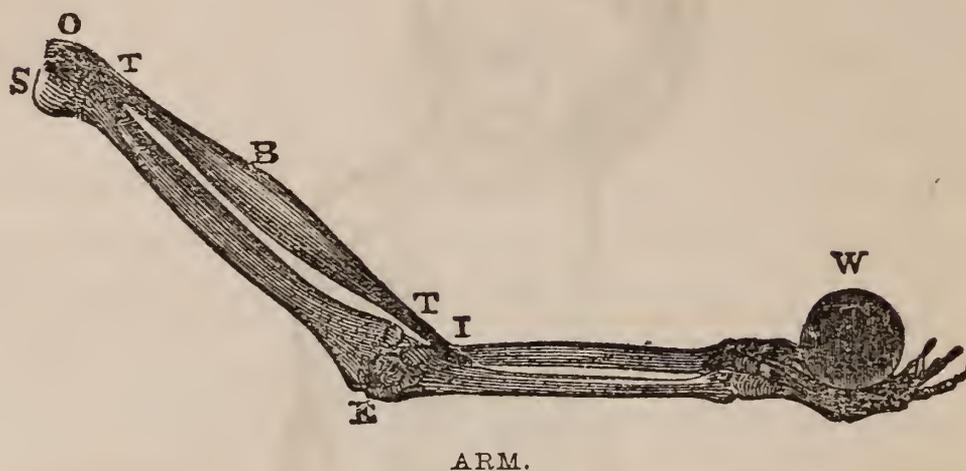


MUSCULAR SKELETON.

[*f g* is the sterno mastoid; its contraction makes the head approach the chest; *i i i*, abdominal muscles, to retain the parts in their places, assist respiration, etc.; *h*, muscles on the chest, to move the arm toward it; *l* extends the arm on a level with the shoulder; *k* is the muscle to raise the fore-arm; *a* moves the fingers; *b*, the fore-leg; and *c* is the tailor's muscle, by which he is enabled to cross his legs.]

The mode in which the nerves act on the mobility of muscles, so as to cause them to thicken or contract, is well shown in this cut. One part of the muscle is attached to the fore-arm, and the other to the head of the

arm ; as it gradually contracts and shortens on itself, the hand approaches the head



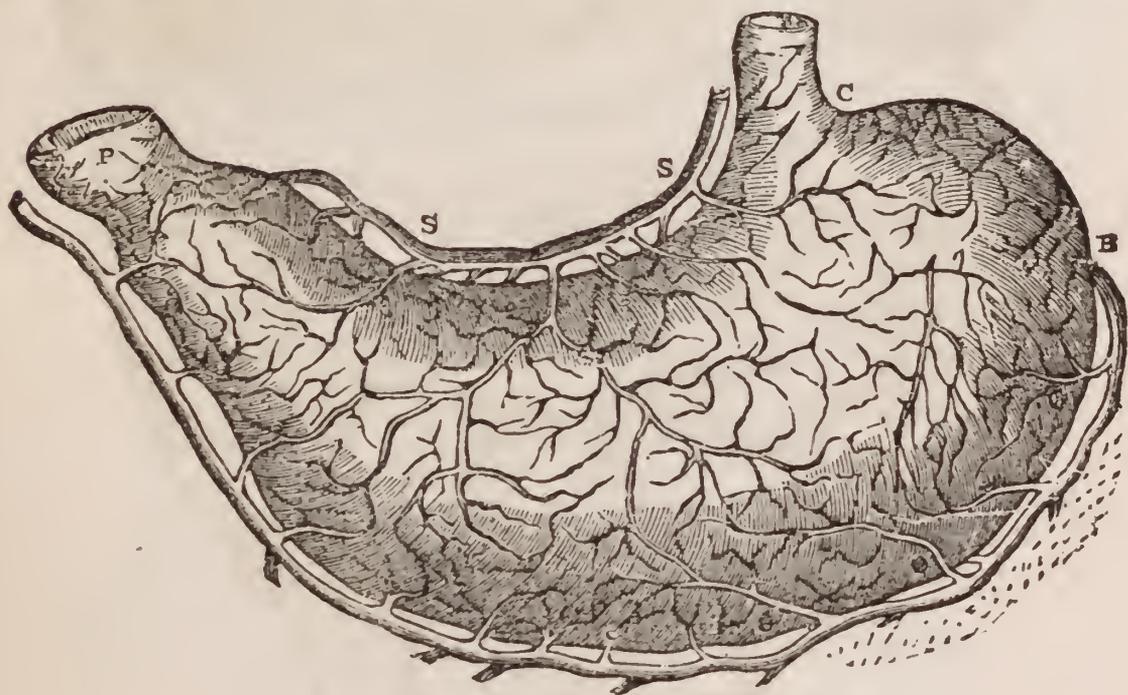
[The figure represents the bones of the arm and hand, having all the soft parts dissected off, except one muscle, O B I of which the function is to bend the arm ; O, the origin of the muscle ; B, the belly ; I, the insertion ; T T, the tendons ; S, the shoulder-joint ; E, the elbow. When the belly contracts, the lower extremity of the muscle I is brought nearer to the origin or fixed point, O, and by thus bending the arm at the elbow joint, raises up the weight, W, placed in the hand.]

When the human germ or embryo is first excited to action, it is not as large as a pin's head, yet, even small as it is, the life power is in vigorous exercise ; it stations deputations of its properties in the proper places to form their own instruments of action out of the minute pulp. In a short time the heart and blood-vessels are formed to carry nutriment to every part, and the bones, muscles, and other organs appear in succession. Its first care is to perfect all the arrangements that are necessary for purposes of nutrition, which arrangements you will understand better in the adult than in the infant, in whom the parts are out of proportion.

When food is taken in the mouth, the saliva is poured out from manufactories of that substance ; it mixes with the food, not only softening it, but also affecting on it an actual change, which is the first real act of digestion. When this fluid is deficient, its want is imperfectly sup-

plied in the other processes of assimilation. This cause alone would account for the dyspepsia, so prevalent among tobacco chewers and smokers, who wantonly exhaust a supply intended for other purposes than the filthy use to which they apply it.

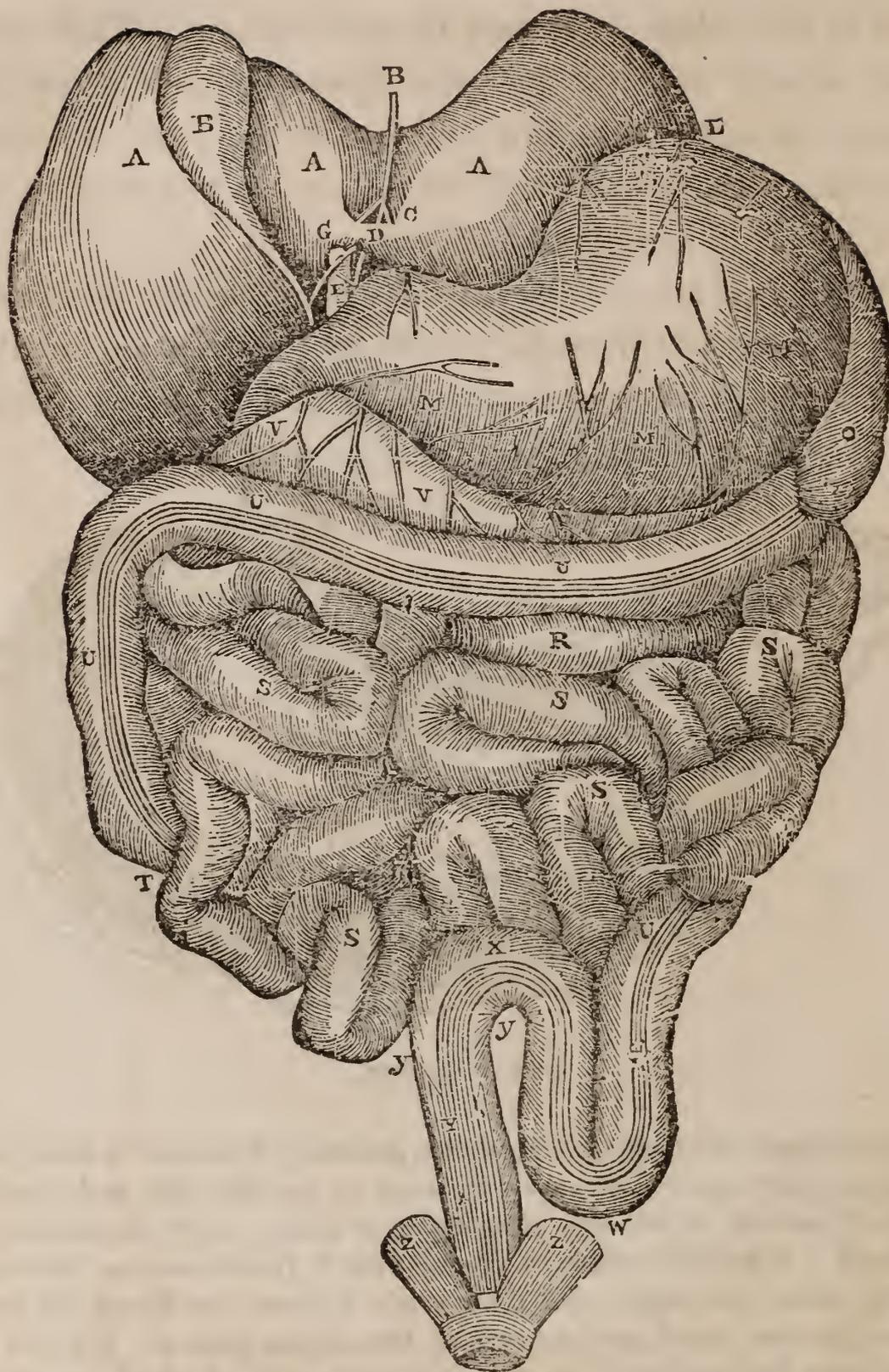
The second act is performed by the stomach, into which the food descends from the mouth by means of a long tube (*œsophagus*) composed of a series of muscular rings,



THE STOMACH.

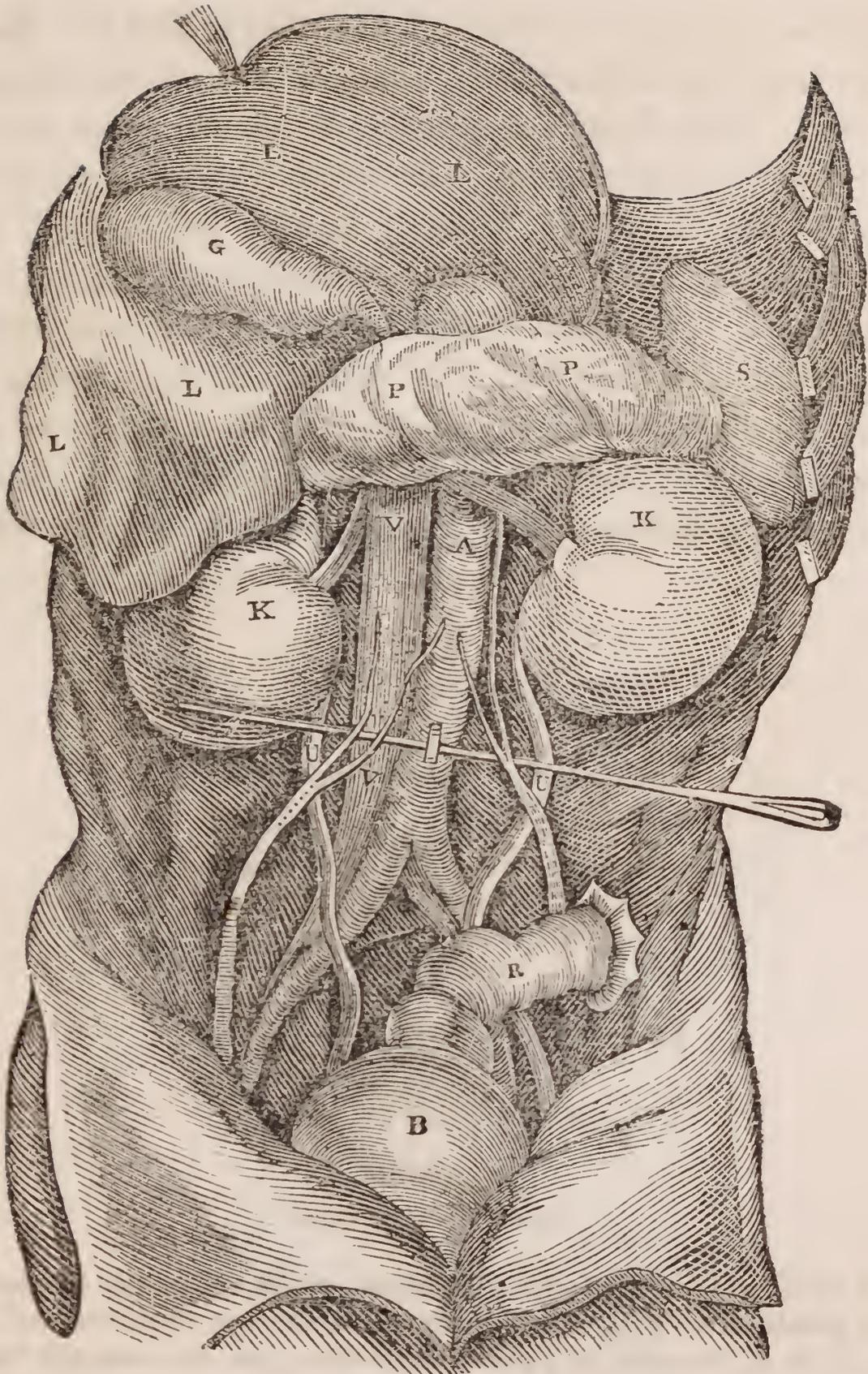
[The stomach is capable of containing, generally, from one to two quarts of liquid; cases occur, however—by want on the one side, and gluttony on the other—in which this proportion is either much diminished or increased. It has two openings—the cardiac, C, (from *cardium*, the heart, it being near that organ) and the pyloric, P, from the Greek for gate-keeper, because it will not let anything but chyme pass it. S S, and B, are arteries surrounding it, to give it a good supply of blood for making the gastric juice.]

which, by contracting constantly above, push it before them. When there, the gastric fluid is poured out on it, completely dissolving the whole, and changing it into a greyish-looking fluid called *chyme*. The stomach then contracts, closing up the opening by which it entered C,



INTESTINAL TUBE.

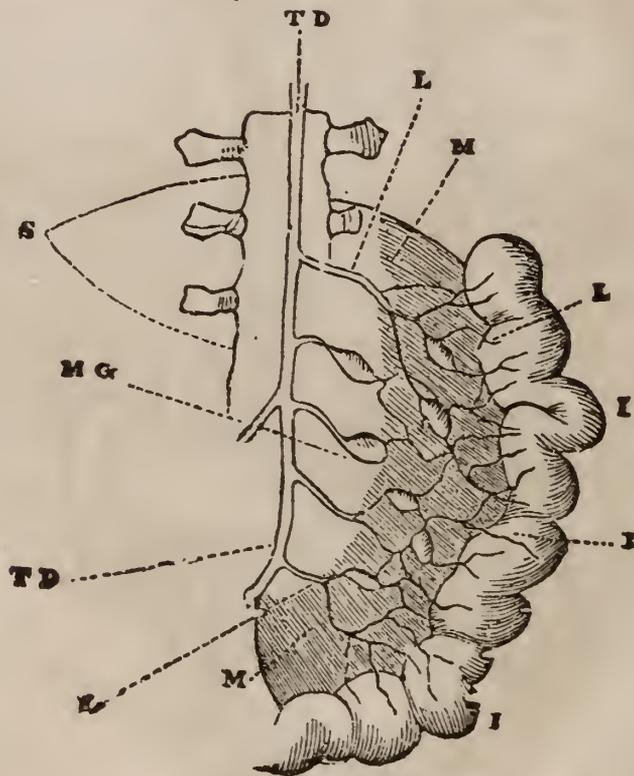
The intestinal tube, from the mouth to its final termination, is over thirty feet long. After leaving the stomach, it is divided into large and small intestines. R S S S S T, are the latter, which end at T into the large, which are marked U U U W; and the termination X y is called the rectum, clasping which last are the strong muscle, Z Z, joining in a continuous circular band below. M M M, shows the stomach; A A A, the liver, and its depository of bile, B, the gall-bladder.]



THE LIVER, GALL-BLADDER, PANCREAS, AND KIDNEYS.

[I, is the liver, turned up to show its under surface ; G, the gall-bladder ; P, the pancreas ; K, the kidneys, which secrete urine from the blood, which they empty into the bladder, B, by means of the tubes called ureters U ; S is the spleen, an organ at the present day considered merely a reservoir of blood for the stomach. The rectum, R, runs behind the bladder toward its terminating point ; V is the great vein carrying up the refuse blood to be purified ; A is the artery returning the same blood purified, to meet the wants of the system.]

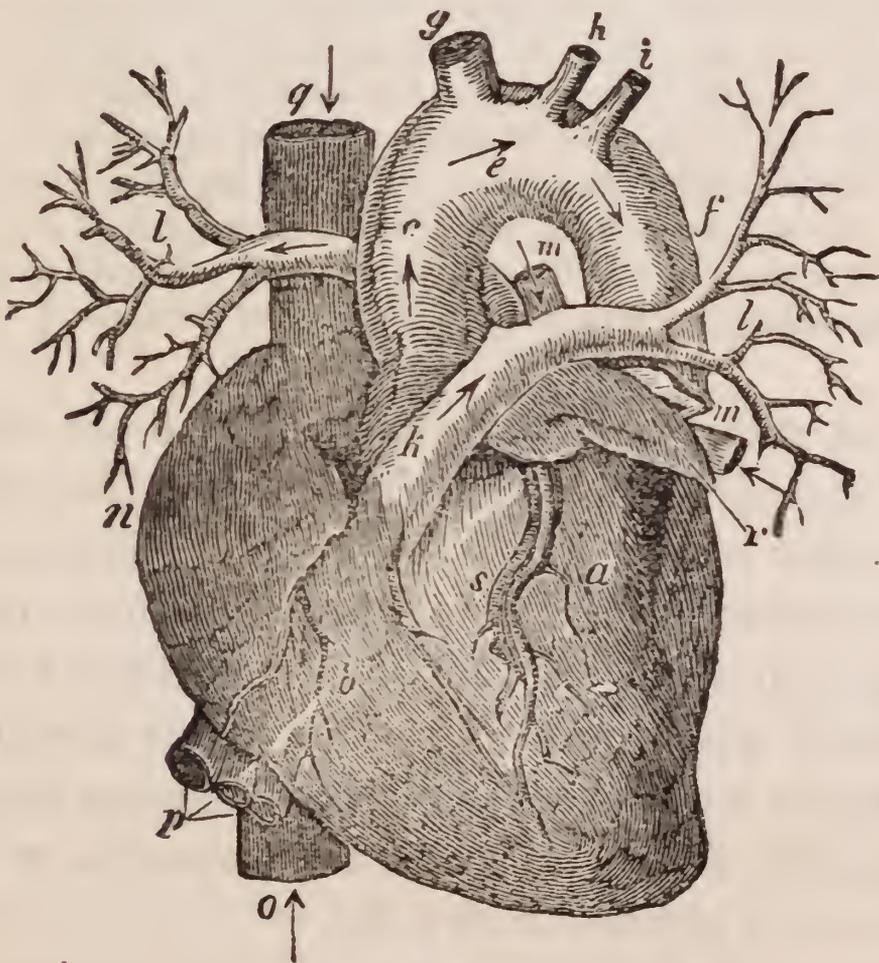
and thus forcing it out through the other orifice P. Soon after entering the intestines, a fluid is poured out through a tube. This fluid is composed of the secretion of the liver (bile), and another secretion from the pancreas (sweet breads); each sending a tube from itself, the tubes uniting into a common duct before opening into the intestines. The liver has a repository for bile, called the gall-bladder, so that it is capable of performing its part in digestion at any moment. It is supposed by many that the juice from the pancreas merely dilutes the bile, but this is not very probable. This juice, when



MESENTERIC GLANDS.

[ I I I I, portions of intestine; L, lacteals, which empty into the mesenteric glands M G; T D, thoracic duct, which conveys the elaborated fluid (which is, at this point, of a pale pinkish color) into the reservoir in the neck. The spine, S, is shown in the back-ground. The mesenteric glands exercise a very important part in digestion; they are sometimes diseased in children, a fact which may be known by feeling on their bellies a number of little hard knots; in such cases, the child, if not cured—no matter what the nourishment is—rapidly wastes away and dies. Dr. Edson, the living skeleton lately exhibited at the American museum, died in consequence of disease closing the thoracic duct, and thus preventing any access of nourishment to his system.]

poured on the chyme, separates it into two parts—the chyle and excrement. The chyle, at this stage, so much resembles milk, as to take its name from a Greek word meaning that article: it is instantly sucked up by millions of little leech-like vessels, called milk carriers, (lacteals from *lactus*, milk,) which convey it to the mesenteric glands to be further elaborated; leaving them, it is carried to a duct and finally mixed with a reservoir of venous blood in the neck, from whence it enters the upper cavity of the right heart, is thrown into the lower cavity, and then taken to the lungs to receive the last stage of purification.



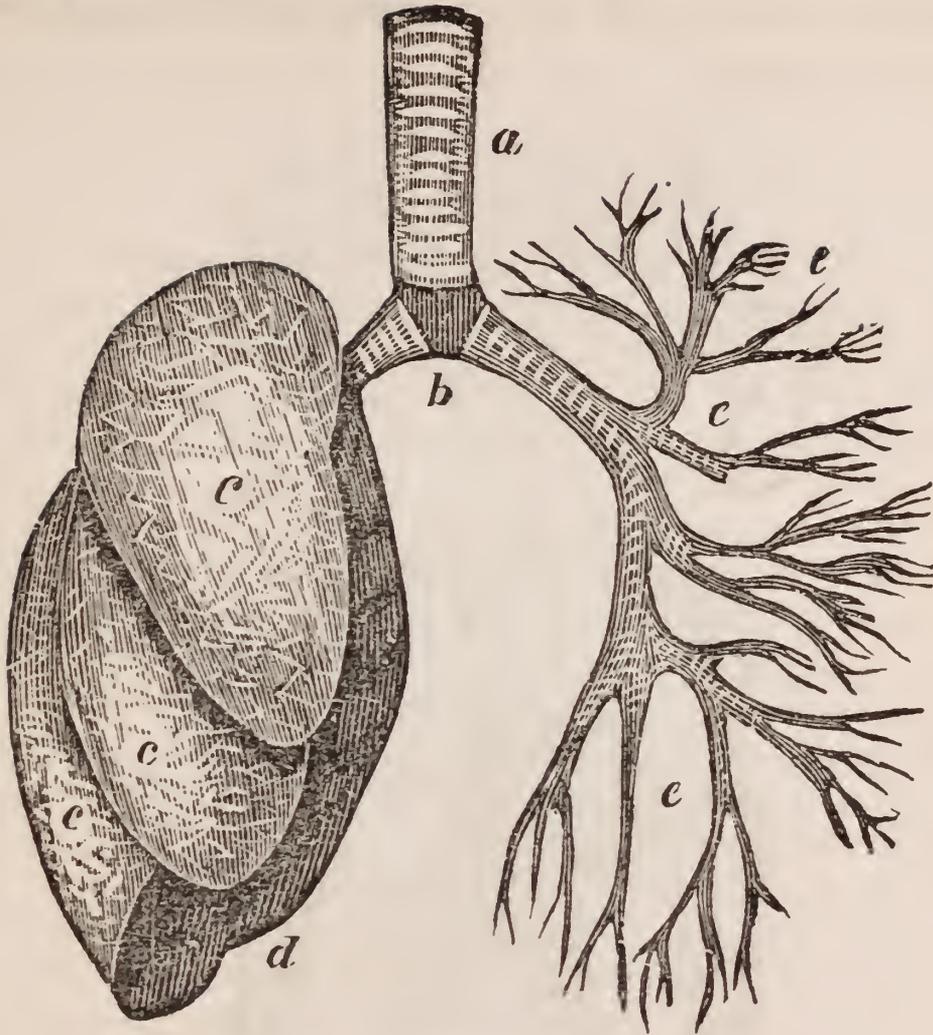
THE HEART.

[Man possesses two hearts, which are only placed together for the sake of convenience. Each heart has two cavities, an upper and a lower one; the upper cavity is called an auricle, from its resembling, in shape, an animal's ear; the lower cavity is called a ventricle, from its shape, resembling a belly. The sudden expansion of the receiving chamber, or auricle

of the right heart, *n*, produces a vacuum, which is directly filled by the mixture of elaborated food and venous blood from various sources, *o, p, q*; it instantly contracts and empties this blood into the distributing chamber, or ventricle below; the ventricle *b* contracts upon itself, and sends the blood into the pulmonary artery, *k*, to be carried to the lungs, *ll*; after receiving a supply of oxygen, and throwing off its carbonic acid, it returns to the left heart by four pulmonary veins, two of which are shown at *m m*; the left auricle, *r*, expands, produces a vacuum, becomes filled, contracts, and sends the blood into the left ventricle, *a*, which also contracts in turn, and throws the fluid into the aorta, *c e*, from whence it is carried through all parts of the system. If the time that elapses between the contractions of the heart be divided into four parts, three of these parts will represent the period of the heart's activity, and one that of its repose; it thus rests one-quarter of the time, or six hours in every twenty-four; it does this (in common with every part of the body that has been exhausting its strength in working) to recruit. The artery that supplies the heart with blood is called the coronal, *s*. Each cavity of the heart holds two ounces; it commonly contracts seventy times a minute, so that over TWO HOGSHEADS of blood are pumped through our hearts every hour! That the irritation of the blood does not cause the heart to contract, and that it possesses an inherent power of action in itself, are shown by the fact that, when taken out of the body (of course, a very short time after apparent death) and pricked, its first motion is to expand. The heart of a sturgeon was hung up to dry, and continued in motion so long that its rustling could be heard in any part of the house.]

Arrived at the lungs, it throws out carbonic acid and takes in a supply of oxygen; it is then thrown into the upper cavity of the left heart, which contracts, sends it into the lower cavity, from whence the aorta receives it, and it then makes its rounds in the system to supply the wants of every part. Chemists tell us that an atom of pure blood is composed of eighteen different elements; and also that the atoms resemble a spangle in shape, being thin and circular with a dot of iron in the middle, occasioning Dr. Good's remark that the wheels of life ran on iron axles.

The arteries subdivide to an excessively minute degree, and the extreme branches terminate in little bladders. Each of these little bladders or globular cells has

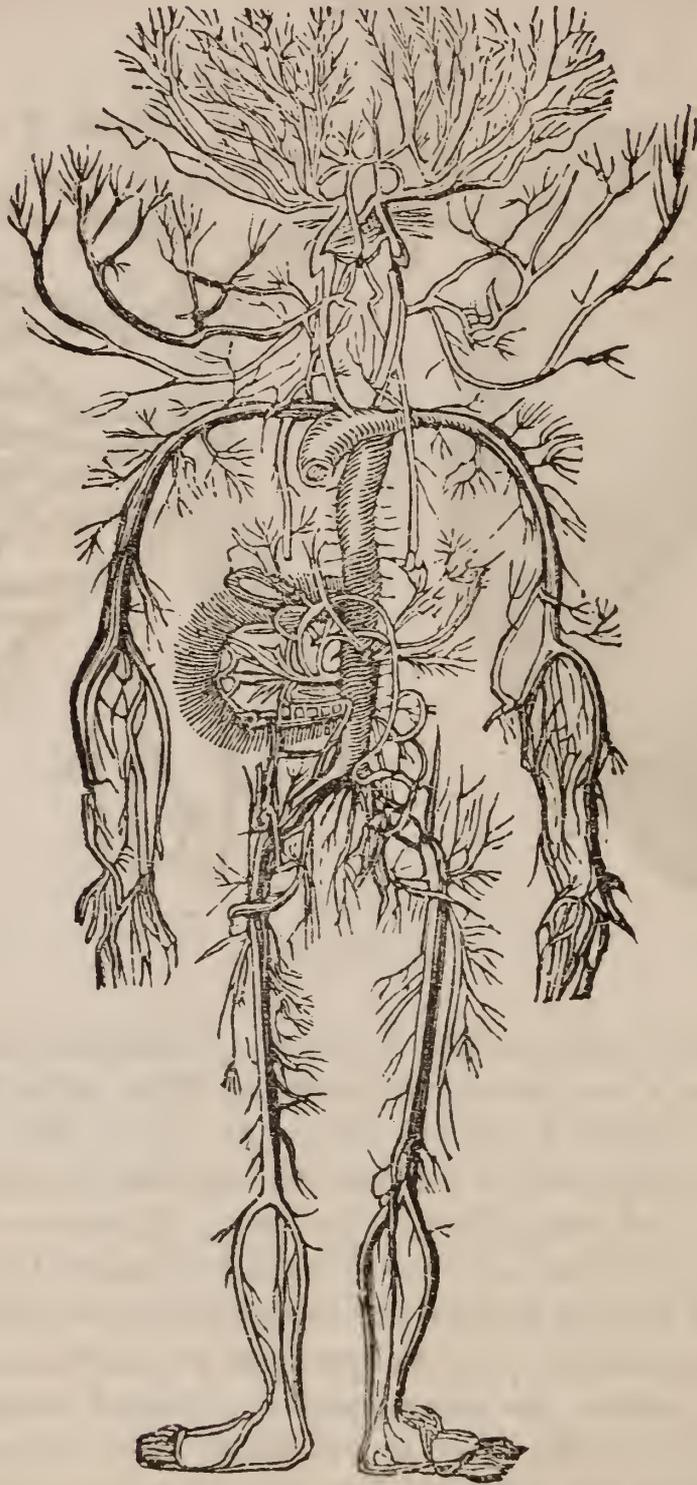


THE LUNGS.

[The windpipe, *a*, gives passage to the air; it ramifies into exceedingly minute branches, *e e e*, which terminate in little cells, the masses of which, in three distinct lobes, are shown at *c c c*; this is only on the right side of the body; on the left side there are but two lobes, the space required for the third being filled by the heart. By means of the muscles surrounding the chest, the lungs are alternately expanded and contracted. It has been found that we require one hundred and forty gallons per hour of pure air for respiration. It is an error that the carbonic acid given out from the lungs poisons the atmosphere in crowded assemblies. Such air has been analyzed, and found to contain as much oxygen as that in a forest; the ill effects are produced from pent-up human exhalations.]

three openings, one for the artery, one for a vein, and one for an absorbent. When an atom of blood arrives in one of them, the absorbent takes from it what is required, and works it up to suit its own purposes; what is left is immediately sucked up by the vein and carried off,

to be again mixed with the elaborated food, and passed through the lungs.



ARTERIAL SYSTEM.

You will remember my mentioning, when speaking of the development of the embryo, the fact of deputations of the life power being stationed in different places to form their own instruments of action; these instruments are called glands and their office is to secrete from the

blood the different fluids required in the system; they are merely a greater or less number of bundles of little bladders, acting in the mode I have just mentioned, and endowed with specific properties to make certain substances. Thus the liver secretes bile; the lachrymal gland, tears; and the salivary gland, spittle; and the inside coat of the stomach, the gastric juice. Here is a cut showing the mode in which the blood-vessels ramify.

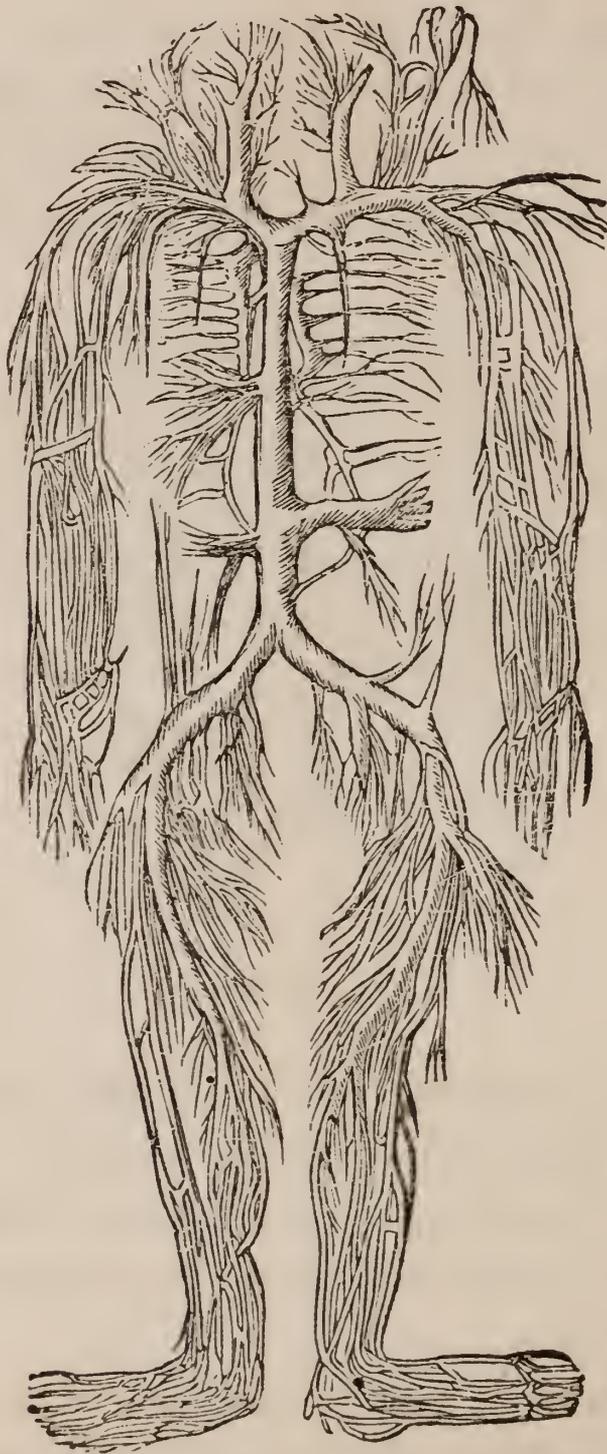


GLAND.

I wish you to carefully examine these cuts and the accompanying descriptions, as too much minuteness in describing the anatomy of the organs, while explaining the functions, would have made the subject very difficult of comprehension.

LADY. I think I understand the nutritive functions now, and I am glad to think that nothing but the nervous system remains between us and the sleepers in the Egyptian temples, to whom I am impatient to return; but I should like to know, if anything injurious should enter in the channels of the circulation, how the blood would get rid of it.

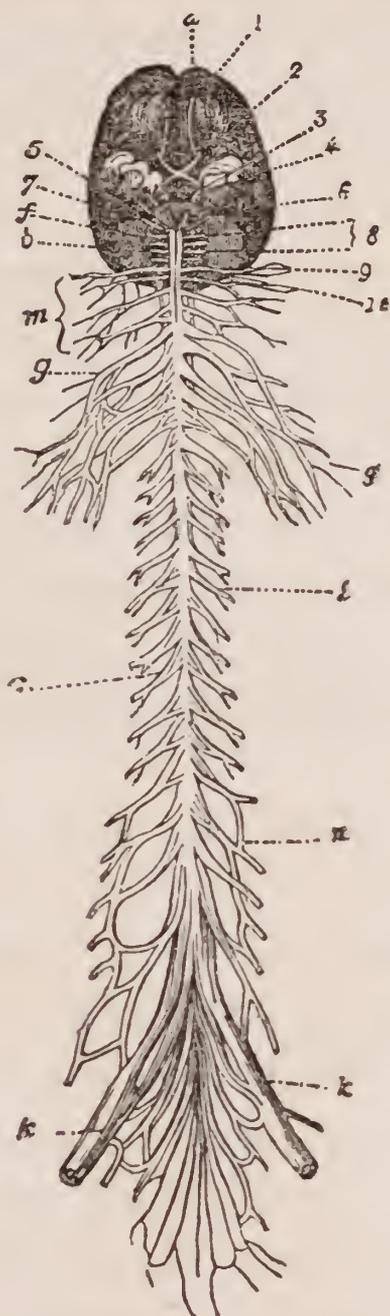
DOCTOR. By means of the skin, kidneys, and lungs, which are all excreting glands, or organs, that throw off offending matters. But, to pursue our subject, we



NERVOUS SYSTEM.

must examine the nervous system. This cut of it will give you an idea of the ramifications of the nerves over the surface of the system. The nerves, like every other

part of our system when forming, begin at the circumference, and grow toward the centre, as shown here:—



CEREBRO-SPINAL AXIS.

[View of the base of the brain, front portion of the spinal marrow, and several attached nerves: *a*, cerebrum (large brain); *b*, cerebellum (little brain, which is lower and posterior than the other); *c*, spinal marrow; *d*, medulla oblongata, the so-called bulging spinal marrow which swells out as it enters the brain; 1, the nerves of smell; 2, nerves of sight; 3, 4, 5, 6, nerves going to different parts of the head, of no particular interest in this place; 7 is related to the nerves of hearing; 8, 9, nerves going to the tongue and gullet, etc.]

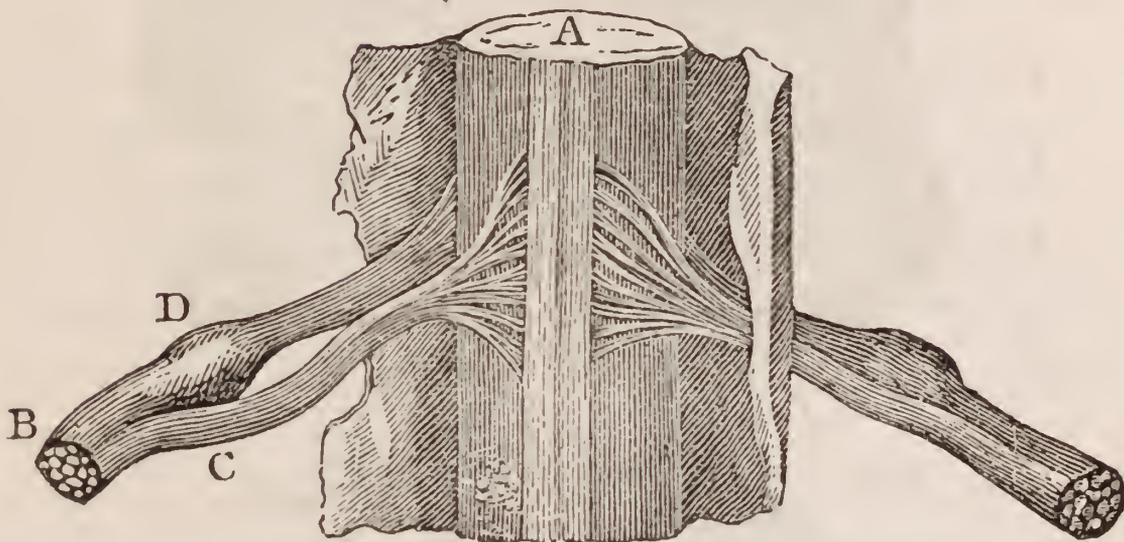
Those of the lower extremities, *k k*, unite in distinct bundles before entering the spine; proceeding upward, we find nerve after nerve running into the back-bone, through holes bored for their reception, as *n, c, l, g, z*, show the nerves as they come from the superior extremities, or arms; *m*, those of the neck, etc. The spinal canal is already filled when the nerves enter it by two kinds of nervous matter, the white and the grey; the latter is supposed to be the origin of sensation and motion, as we invariably find, by tracing the nerves to their terminations, that they end in it; and we know the nerves are nothing more than communicating media.

LADY. By your course of reason, I would conclude that cutting the nerve of a part, before it entered the grey matter, would destroy all sensibility in that part.

DOCTOR. And motion as well. All distinct masses of the grey matter in the body are termed ganglia; the spinal cord, from its lowest part till some distance upward in the neck, is composed of two ganglia, sensation and motion. With regard to cutting the nerves, that has been done so often, and so invariably with the same result, that it has become an established point in science, of no sensation of any kind existing, except as connected with a superior essence. Sensation in the lower animal seems even on a par with their intelligence. The gadfly, Dr. Good remarks, when it fastens on the hand, can be cut to pieces without its experiencing any apparent pain; and the idea of Shakespeare has been long ago exploded—that

———“ the poor worm thou tread’st on,  
In corporeal suffering, feels a pang as great  
As when a giant dies.

The nerve of sensation, and that of motion, are bound in the same sheath, till within a short distance of the spinal cord; they then separate, and each enters its own ganglion. This cut shows a front section of the spinal cord and nerves:—

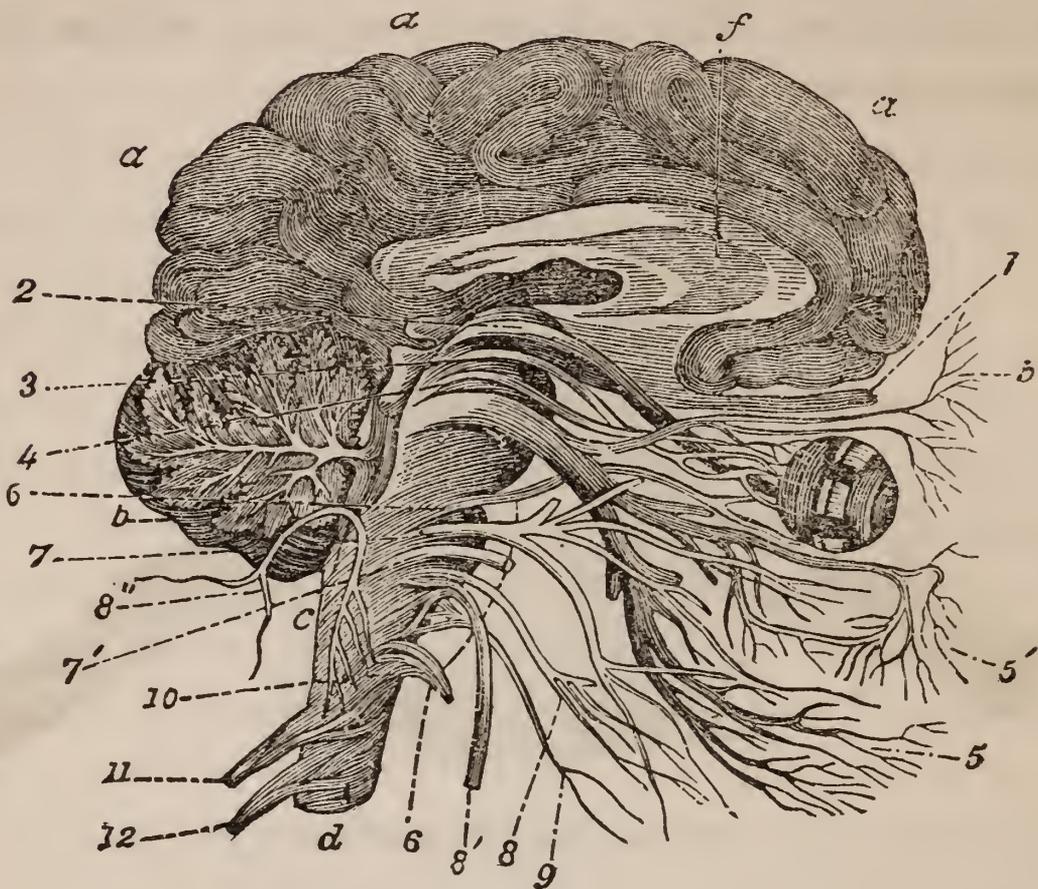


SPINAL CORD AND NERVES.

A represents the spinal cord; B, the united nerves; C, the branch for motion, traveling alone; D, that of sensation, which always thickens into a knot in its progress before entering its ganglion.

At the upper part of the spinal marrow, we find a series of ganglia in pairs, one set behind the other, in regular order, and always found in the same relations to their parts; these are the ganglia of the *special senses*. So much has observation been directed to these points, and so true and unvarying is nature, that, by examining the size of the ganglia of the animal, we can tell the degree of perfection the several senses have attained. In the eagle, we find the optic ganglion large; in the hound, the olfactory; in the rabbit, the auditory; and in all instances, the same result holds.

The nerves supplying the teeth come from the third branch of the five pair marked in the side view 5'.



SIDE VIEW OF THE BRAIN.

[The numerals correspond to those in the cut of the cerebro-spinal axis. The tree-like and branchy appearance of the cerebellum, or lesser brain, is well shown.]

Many of the lower animals have only two ganglia, sensation and motion; as we ascend the scale, and find animals possessed of special senses, so do we find the corresponding ganglia present; still ascending, we find a new pair of ganglia, which I will denominate those of **INSTINCTIVE INTELLIGENCE**; for, in proportion as the animal exhibits marks of intelligence, do these ganglia increase in size, and the enlargement gives shape to the skull. So small is this in some animals, that they have a perfectly flat skull on a line with the spine. As we still ascend the scale, it continually enlarges, and the

skull protrudes above the spinal column, as may be seen in the dog and horse.

In man, the ganglia of instinctive intelligence—or, according to Coleridge, of understanding—is out of all proportion, as regards size, to the others; it covers them all, its bulging in front forming the forehead.

LADY. One might find some excuse, in what you are saying, for the eastern ideas of transmigration; a constant and perfect ascent from the very lowest germ of life to man would give rise to some ideas of its being *one identical spirit*—an immortal being undergoing its education for eternity, and, in the highest and last stage of material maturity, preparing for its future spiritual existence.

DOCTOR. You will be much surprised to find that the brain of the child before birth is not the miniature brain of the man; but, on the contrary, rises, as you have just guessed, from the lowest to the highest, passing through the grades of animated existence till it arrives at its present state in man, and even then continues growing, if cultivated, as many well-attested cases have fully demonstrated. The head of Napoleon, after he became emperor, was much larger than it was some years previous; a fact shown by two busts of him, now at Paris, taken at different periods.

A Scotch gentleman once informed me that the eldest son among the aristocracy of Great Britain is titled from birth, and, at the death of his father, receives the honors of the deceased without any delay; but that with the heir to the throne it was entirely different—he must be made a knight, a baron, an earl, etc.; gradual and successive steps giving him rank—the laws, unless these preliminaries are observed, declaring him without

any. I have never made inquiry to know whether this matter was so or not, but, at any rate, it illustrates the stages of the lords of creation, as they style themselves.

LADY. You have destroyed transmigration, as there could be no occasion of retracing the steps if once gone over.

## CONVERSATION IV.

### DOUBLE LIFE OF MAN.

DOCTOR. You will remember the care of the life power, when first excited, to complete all the arrangements required in nutrition. These arrangements are called by anatomists the organs of vegetable or organic life: such are the stomach, liver, heart, arteries, veins, kidneys, etc. Another set is required for the soul: the organs composing it are called the organs of animal life: such are the brain and voluntary muscles.

LADY. To recall your former comparison, every thing that relates to keeping the house in good order, and feeding its inmates, would belong to the vegetable organs, while the animal are devoted to obeying the commands of the soul.

DOCTOR. You comprehend my meaning. The apparatus in animals that pertains to nutrition, though indirectly influenced by the brain, is a system within itself, having its own set of nerves and ganglia. Its ganglia differ from those of animal life, in being of a reddish grey color, and lying among the soft parts; they are distributed from the orbit of the eye to the lower part of the back bone, and have a grand centre or brain, called the semi-lunar ganglion, which lies behind the stomach.

So sparsely are the nerves of sensation given to the organs of vegetable life, that, in surgical operations there is little or no pain felt after the skin is cut. Har

vey, the demonstrator of the circulation of the blood, was acquainted with a young nobleman who, from disease, had the heart so exposed that it could even be handled while beating: he found, to his astonishment, that unless his fingers came in contact with the outer skin, the young man was altogether unconscious of the heart being touched.

The cut on page 65 shows the ganglionic system of organic life. A A A A is the semi-lunar ganglion, or brain of the system; the letters and numerals name the different ganglia from the organs they superintend. need not mention all these, my object being only to give a general idea of the two lives, vegetable (organic) and animal, that belong to our system.

LADY. Has a distinct separation ever taken place between the two sets of organs, so that one acted while the other was quiescent?

DOCTOR. Yes; and quite enough to prove that the body and the mind can exist independently of each other. In concussion of the brain, sensation, thought, and locomotion, the functions of animal life, are entirely passive, while the organic continue with the usual activity and regularity. Sleep, which I will refer to again in a short time, affords a less striking instance.

Dr. Good remarks that in cases of suspended animation, by hanging, drowning, or catalepsy the vital principle continues attached to the body after all the vital functions cease to act, often for half an hour, and sometimes for hours. In the year 1769, Mr. John Hunter, being then forty-one years of age, of a sound constitution, and subject to no disease except a casual fit of the gout, was suddenly attacked with a pain in the stomach, which was shortly succeeded by a total suspension of



GANGLIONIC SYSTEM OF VEGETABLE LIFE.

the action of the heart and lungs. By the power of the will, or rather by violent striving, he occasionally inflated the lungs, but over the heart he had no control whatever; nor, though he was attended by four of the chief physicians of London from the first, could the action of either be restored by medicine. In about three-quarters of an hour, however, the vital actions began to return of their own accord, and in two hours he was perfectly recovered. Sir Everard Home observed that in the attack there was a suspension of the most material involuntary actions; even involuntary breathing was stopped, while sensation, with its consequences, as thinking and acting, with the will, were perfect, and all the voluntary actions were as strong as ever.

Dendy mentions cases in which this power of disconnection was voluntary. Colonel Townsend's case was one of undoubted authority. That officer was able to suspend the action of both his heart and lungs, after which he became motionless, icy cold, and rigid, a glassy film overspreading his eyes. As there was no breathing, the glass held over his mouth showed no apparent moisture. Though all consciousness would pass away, yet the colonel could re-animate himself when he chose. Dr. Cleghorn relates the case of a man who could stop the pulse at his wrist, and reduce himself to the condition of fainting by his will.

Though it is only in rare cases that the will has any power over the nutritive organism, yet the emotions always exercise a very considerable influence. Every one has experienced the manner in which ill news spoils the appetite. Some cases of the effects of imagination, in producing fear, and thus exciting disease, we have already reviewed, but a few more will not be out of

place here. Platerus tells us of some girls playing near a gibbet, when one of them threw stones at a criminal suspended on it. Being violently struck, the body swung, and the girl, believing it was alive, and was descending from the gibbet, fell into violent convulsions and died.

Wescloff was detained as a hostage by the Kalmucs, and was carried along with them in the memorable flight to China. His widowed mother had mourned him as dead, and on his sudden return, the excess of joy was fatal instantaneously. In the year 1544, the Jewish pirate, Sinamus Taffurus, was lying in a port of the Red Sea called Orsenoe, and was preparing for war, being then at variance with the Portuguese. While he was there, he received the unexpected intelligence that his son (who, in the seige of Tunis, had been made prisoner by Barbarossa, and by him doomed to slavery,) was suddenly ransomed and coming to his aid with seven ships well armed. He was immediately struck as if with apoplexy, and expired on the spot. The same effect was produced upon the door-keeper of Congress during the revolution, who, on hearing the news of a victory won by his countrymen, fell back and expired in ecstasy.

LADY. I suppose it is in the ganglion of the understanding that phrenologists map the seats of the various properties of the mind.

DOCTOR. It is: they say that if there are separate ganglia for the special senses, which are, after all, but mere modifications of general sensibility, why should not the same plan hold good in locating the different properties of the mind, which may be called the special senses of the understanding; and the anatomical analo-

gies favor this view. It had been said, before phrenology was known, that the faculty by which the astronomer calculated eclipses was as distinct in his mind, and preserved its individuality as much, as the eye in his body.

LADY. It would also account for the influence of habit, our constant pursuit of one object fostering the germ of an organ to maturity. What is the brain made of?

DOCTOR. Its chemical constitution is principally albumen. It is formed of an immense number of arteries, veins, and nerves. Dr. Gall was the first to completely unravel its complex web, which he was enabled to do after hardening its substance by long-continued boiling in oil.

LADY. The ancients must have been aware, as well as ourselves, that the height and prominence of the forehead were the distinguishing traits of a high degree of intelligence, when they made the foreheads of the gods bulge out beyond an angle of ninety degrees.

DOCTOR. They were as close observers as ourselves, and I am inclined to think knew almost as much. Nearly in the centre of the brain is a substance, commonly about the size of a pea, called the pineal body, which Galen considered to be the seat of the soul: an idea that has been much ridiculed. But an attentive study of the brain has convinced me of the truth of Galen's supposition; for it has communication, by means of nerves, with the most important ganglia. And I think it reasonable to suppose the soul occupying a superior and independent position, overlooking and governing the inferior powers; and precisely such a position would be obtained by a residence in the pineal

body ; this opinion is confirmed by the fact, that in idiots its means of communication are mostly cut off and injured.

LADY. Can disease of the body injure the soul ?

DOCTOR. Only by acting on its means of communication with the external world. We have considered the soul to resemble a man shut up in a dark and central chamber of his house ; he has servants stationed at the windows who tell him what they see ; an apparatus, also superintended by servants, is fixed on each side of his house, to collect sounds, which are then reported ; and the other senses communicate in the same manner. Cut off from all *personal* observation, he can only judge of the outward world from his messengers ; when these are true to their office, and the full growth of the brain is attained, man is in complete possession of all his faculties ; if he does not become eminent then, he never will. For many years his messengers have been imparting news, and the time has come when they should work up and mentally digest all this material. Knowledge digested becomes wisdom. For this purpose, the avenues gradually close ; the servants become old and inactive ; and at last—"sans hearing, sight, and taste"—his communications with the external world are at an end ; he then moves around—a walking vegetable. Where nature's laws are allowed free operation, we never find abrupt transitions ; all rises by a gradually ascending scale ; and as man bids adieu to this world, another begins opening to his view, and the soul becomes gradually accustomed to its future mode of existence.

LADY. While on this subject, I would like to know if we have two brains ?

DOCTOR. Yes. Dr. Wigans has lately written a very interesting book on the subject: he argues, that as we have duplicates of all the organs of animal life—such as the eyes, ears, etc.—and as each of these produces a distinct and separate impression on the brain, and were so made the better to render us able to judge of, and correct, erroneous impressions, by comparing the effect of each, so the duality of the brain was intended for the same purpose.

LADY. I can easily conceive why the senses should be double, as I have seen persons who were deaf in one ear, and from that cause could not tell the direction from whence the sounds they heard proceeded. The experiment, cited by Abercrombie, of placing a cent on the edge of a table, and standing at the extreme distance from the table to be enabled to knock it off with ease, with both eyes open, by means of the finger when the arm is stretched out—and the certain failure attending the effort when one eye is closed—would prove the necessity of two optical organs.

DOCTOR. Dr. Wigans argues, in relation to the brain, in a similar manner, and thus accounts very ingeniously for all stages of insanity. He says, that as there are two brains, and each receives from its nerves a distinct impression, both, *provided they are healthy*, will convey a correct and single report to the soul; but if diseased, a very different and conflicting account reaches it, and acting first on one, and then on the other, produces insanity, more or less complete in accordance with the amount of disease. He makes a madman, in this sense, most truly, a “man beside himself”—who holds series of conversations with himself, which, if the separate trains were followed out, we should find consistent

in themselves. Let us allow the seat of the soul to be the pineal body, and the theory of Dr. Wigans will be verified.

LADY. Insanity, then, might be considered, in this light, as a squinting of the brains!

DOCTOR. I am glad to perceive you understand the illustrations. We are now very near to our sick devotees in the Egyptian temples. But I must first make a few remarks on the functions of the brain. The office of this organ is to secrete the *nervous fluid*, by means of which the mind holds communication with, and directs, all the parts to which it is connected by nerves. Though the organs of vegetable life have a ganglionic and nervous system of their own, still many fibres from the brain and spinal marrow are sent to them, and, as in the case of the *emotions*, a powerful though indirect influence is exerted upon them. So long as we have a supply of the nervous fluid, sensation, thought, and locomotion (the functions of animal life), are in vigorous exercise; but the moment the supply becomes deficient or ceases, a partial or total failure of these powers, depending on the quantity, is the direct result, and slumber succeeds, to allow more of the necessary article to be secreted. Whatever acts on the irritability of the brain, so as to change or alter the nervous secretion, acts in a corresponding manner on all the parts to which the changed fluid is carried by the nerves.

The optic and auditory nerves are the principal servants that wait on the mind in conveying news. The eye and ear resemble each other in being instruments for the purpose of condensing vibrations, to make them sufficiently intense to produce impressions on their sep-

arate nerves, so that messages can be carried to the inner chamber.

LADY. Is light produced by vibrations, as well as sound? I have always considered it to be composed of particles of matter.

DOCTOR. It is now proved to be merely the vibrations of an ether existing throughout all space, and capable of being excited by luminous bodies.

LADY. If the optic nerve were uncovered, then we might do without the eye, as the vibrations of light would alone suffice to produce distinct images.

DOCTOR. We need not have recourse to so violent a mode of reaching the special senses, which even then would require something more to insure success. The *material* in ordinary life has the preponderance; but we are so formed that the *spiritual* in certain cases may obtain the balance of power; in proportion as the latter gains the ascendancy do the servants become more active and easily impressible, till at length a point is reached where the apparatus for condensation can be entirely dispensed with. In this state, the vibrations of light that strike on the bony covering of the head will find the nervous matter behind it sensitive enough to convey impressions to the sensorium. This state is commonly termed that of clairvoyance.

LADY. Can we, in any case, ever hear sounds without the ear?

DOCTOR. Easily; and it does not require any preparation to produce that effect. Hold your watch in such a manner inside the mouth that nothing is touched, and no sound will be heard; but by closing the teeth on it a loud ticking can be instantly perceived. The sound travels through the bony structure to the auditory nerves

LADY. You certainly present proof sufficient ; it is as you say. This reminds me of a story I read some years ago about a merchant in Holland, who had not heard a sound for years, till once, while smoking, the end of his pipe accidentally touched a harpsichord, on which his daughter was playing ; to his astonishment, he was conscious of the music even to the lowest tones, and he afterwards found that he could converse with any of his family through the medium of a stick supported by the teeth of each.

DOCTOR. As nature does nothing abruptly, the ascension of the spiritual over the material is gradual. The influence that produces it in fascination is the NERVOUS FLUID or vapor thrown off from the person operating. This vapor acts upon the irritability of the patient ; by sympathy it is transmitted to the brain ; the secretion of that organ is changed ; and the altered nervous fluid it is making when sent to the various parts over which it has influence by the nerves, produces a series of results called fascinating phenomena.

LADY. Does not the loss of this fluid injure the fascinator ?

DOCTOR. In some cases it does, but there are many so gifted as to impart it without danger. A sensation of weakness ensues, which soon vanishes by a new supply of fluid from the continued secretion of the brain. It is the patient that runs the greatest risk, for many persons take the office upon themselves without any ability to discharge its duties properly, and much trouble often ensues in consequence. So well is this understood, that in Prussia it is a criminal offence for any but physicians to operate. Cases have occurred, under my notice, in which the chest has been paralyzed ; in others, incessant

vomiting produced, and convulsions have been very common. Its true mode of action should be thoroughly understood before it is practised, and then only by the order and in the presence of the physician himself.

LADY. It is divided into stages, is it not ?

DOCTOR. Yes, into six, each of which are again subdivided into six others, making thirty-six in all.

The first stage seems a mere quickening of the senses ; it is characterized by a sensation of coolness, and a feeling of more wakefulness than before. In your own case, at this point, you felt, I remember, rather more uneasy than before I commenced ; but, in another instance, I was told by the patient that it was impossible to operate on him, so much was his mind filled with the idea of a necessity of going to sleep in being fascinated. I had doubted his susceptibility up to the moment he spoke, but I was then convinced I was affecting him ; and, in fact, he was soon insensible. The quickening of the senses is often shown without the agency of fascination, as in fever, when the slightest noise will disturb a man, whom, in health, the explosion of a cannon would not move.

LADY. I have often felt so. Last week I had a severe headache, and could not endure any motion whatever around me, and, if I was touched by accident, was in absolute pain.

DOCTOR. An extraordinary class of phenomena owes its existence to a peculiar development of this susceptibility I mean what is commonly called idiosyncracies, or peculiarities. I have heard Professor Revere speak of a lady who lived in a state of agony during the flowering season of plants ; the pollen floating in the atmosphere acted upon her irritability in such a manner as to pro-

duce serious disease, realizing in her own experience Pope's idea of

“Quick effluvia darting through the brain,  
Die of a rose in aromatic pain ;”

and, strange to say, his lines on more refined sensibility and its consequences, have all been verified in this stage. Some men cannot endure the presence, or even proximity, of a cat ; others abhor cheese. Stepping into a friend's store one evening, while his clerk was absent, to procure some ipecac, I was requested to weigh it out myself, and replace the bottle on the shelf ; should he do it, he said, it would cause him a week's illness. And this seems, too, an instinctive precaution, warning the system against unseen evil, and to disregard which would be dangerous. The friends of a young lady having tried in vain to induce her to eat cheese, enclosed a very small quantity in some cake, which she swallowed without suspicion ; an alarming and long continued illness was the result.

The sense of chillness, felt in the first, stage increases, and the pulse begins to rise rapidly ; the second stage continues but a short time, and finally ushers in the third, which is denoted by a dreamy and triumphant state of feeling. If any pain exists it now ceases, and the eyes close beyond the power of the will to open. The closure of the eyelids is, beyond doubt, caused by fixing the eyes so steadily on an object as to exhaust their nervous power. Mr. Braid, of Manchester, England, has proved this fact ; he considers that it will account for all the phenomena of fascination. His writings, however, demonstrate exhaustion in a most incontestible manner, but they most assuredly do nothing else ; it was labor lost, the facts being well known long

before, and never doubted. Your personal experience only reaches this stage.

LADY. Is it possible to produce curative effects without reaching the third stage ?

DOCTOR. The second and even first, when thus artificially induced, will often have a beneficial influence. But it is a difficult matter to mark out and separate these stages, closure of the eye not being sufficient evidence, for it may not occur at all. I heard this morning of a man who had three teeth drawn while in one of these stages, and was shown the teeth. The fascinator, after trying several times to close his eyes without success, undertook to draw the teeth. Though at other times exceedingly sensitive, the man from whom they were drawn did not experience the slightest pain.

As the fourth stage is approached, rigidity of the muscles can be induced ; the body and limbs may be fixed in the most strange and painful attitudes without causing any pain, and thus continue any length of time. Arrived at the fourth, sensation totally ceases ; and a cataleptic state intervenes. Surgical operations can now be performed without pain, or the knowledge of the patient. The nervous system undergoes a remarkable change ; either the white matter is not capable of carrying, or the grey of receiving, ordinary impressions.

The fourth is the highest state that man can induce by artificial means ; but some persons are so peculiarly constituted as to continue ascending. As they near the fifth, clairvoyance becomes fully manifest. Passing the fifth, the *spiritual* obtains the entire predominance, and the things of the invisible world are displayed with more or less clearness, in proportion as they verge on the sixth which is death.

LADY. Fascination seems to me to be a separation between our animal and vegetable lives. As the ties that bind the animal to earth are loosening, it gains vigor and power; and qualities, the germ of which we have only been enabled faintly to discern below, expand to their full proportion, giving rich promise of future capability.

DOCTOR. True; and at the sixth, the separation of soul and body is completed, and the corruptible puts on incorruption, and the mortal immortality.

LADY. Then perhaps the final separation of soul and body is accomplished by an angel fascinating us, and death's cold dart be, after all, a pass from a superior being. As I review the wonders I have just heard, it appears to me exceeding strange that so minute a cause as a pass in fascination should produce such astonishing results.

DOCTOR. It is a very difficult matter to tell what small causes are. A little yeast, mixed with a thousand gallons of malt infusion, will make the whole ferment. A grain of calomel will sometimes alter the irritability of the whole system. Why, then, should not the most highly organized product in our bodies, acting, too, with every advantage on the most sensitive powers of another, produce a strange effect?

But to return to our patients in the goat skins; you will have no trouble now, I presume, in understanding how it was that they had peculiar visions; for, if my supposition of Satan first moving men to the discovery of fascination be true, nothing can be more rational than to suppose he also appeared, or some of his demons, assuming the form of Esculapius, and prescribing the proper remedies for diseases. Though it must have

caused him considerable chagrin to relieve pain, and in any way promote human happiness, still it had the advantage of increasing the faith of his devotees, and the number of his followers. That Satan exercised a direct influence on the mind of the emperor Julian is evident, by his deadly hatred of all that pertained to our Saviour, and his mad attempt to refute his prediction in relation to the Jewish temple. Indeed, Julian himself tells us that, when sick, he had often been cured by Esculapius pointing out the proper remedies as he slept in that god's temple.

It would be an easy matter to fill volumes with proofs taken from the early history of the ancient nations; proofs, too, which show, in the most convincing manner that fascination was universally known and practised by the priests of the temples; and that it was principally in this way they were enabled to retain their power and influence over the people. Even Origen tells us that in his day vast multitudes flocked to the temples of Esculapius for relief from infirmities; and distinctly intimates that many remarkable cures were really performed. A few instances from these early times are all we can consider at present.

Charles Radclyffe Hall gives to Apollonius Tyanneus the palm as a mesmerizer. He seems to have been a man of prodigious fascinating power, and was not only famous for curing diseases, and his powers of clairvoyance, but also in foretelling events. While delivering a public lecture at Ephesus, in the midst of a large assembly, he saw the emperor Domitian being murdered at Rome; and it was proved, to the satisfaction of all, that while the murder was performing, he described every circumstance attending it to the crowd, and announced

the very instant in which the tyrant was slain. It is recorded, that so great was his nervous influence, that his mere presence, without uttering a single word, was sufficient to quell popular tumults.

Pythagoras, also, ranks high, and not undeservedly. After receiving his education in Egypt, he ever after assumed the dress of a priest of Isis. It is related of him that he could give relief from any pain or disease; his method consisted in passing the hands slowly over the body, beginning with the head, retaining them for some time at a little distance from the place of disease. In common with the philosophers of his day, he veiled the real means of relief under the form of an incantation; for, while fascinating, he kept continually uttering magical words. His power over the lower animals must also have been considerable; he is said to have tamed a furious bear, prevented an ox from eating beans, and stopped an eagle in its flight.

Hippocrates, the father of medicine, was not himself entirely free from the wish to keep this means of cure secret. He informs us that there are two distinct parts in the practice of medicine—the common, such as young herbs, and the secret; which latter must only be divulged to particular persons, who are in favor with superior powers. He mentions, that when the eyes are closed, there are times in which the soul can discern diseases in the body; and also that the light we derive from dreams is a great help in our progress to wisdom.

## CONVERSATION V.

### SPIRITUAL STATES.

LADY. I am glad to see you this morning, Doctor. I wanted to ask you if cases ever occurred, in our day, of persons seeing the spiritual world. I remember your remark of the celestial gates, in Mansoul, being closed, but they were not taken away; why, then, should they not be occasionally opened in the nineteenth century, as well as the first?

DOCTOR. A little research will convince you that such cases are anything but uncommon: that of William Tennant, a Presbyterian clergyman, of Brunswick, New Jersey, is well known, and of undoubted truth.

He tells us, that while conversing with his brother on the state of his soul, and the fears he entertained for his future welfare, he found himself, in an instant, in another state of existence, under the direction of a superior Being, who ordered him to follow. He was immediately wafted along, he knew not how, till he beheld, at a distance, an ineffable glory, the impression of which he found it impossible to communicate to mortal man. "I immediately reflected on my happy change, and thought, Well, blessed be God! I am safe at last, notwithstanding all my fears. I saw an innumerable host of happy beings, surrounding the inexpressible glory, in acts of adoration and joyous worship; but I did not see any bodily shape or representation in the glorious appearance. I heard things unutterable. I

heard their songs and hallelujahs of thanksgiving and praise, with unspeakable rapture. I felt joy unutterable and full of glory. I then applied to my conductor, and requested leave to join the happy throng; on which he tapped me on the shoulder, and said, 'You must return to earth.' This seemed like a sword through my heart. In an instant, I recollect to have seen my brother disputing with the doctor. The three days during which I had appeared lifeless, seemed to be of not more than ten or twenty minutes. The idea of returning to this world of sorrow and trouble gave me such a shock that I fainted repeatedly. Such was the effect on my mind of what I had seen and heard, that if it be possible for a human being to live entirely above the world and the things of it, for some time afterward I was that person. The ravishing sound of the songs and hallelujahs that I heard, and the very words that were uttered, were not out of my ears for at least three years. All the kingdoms of the earth were, in my sight, as nothing and vanity; and so great were my ideas of heavenly glory, that nothing which did not, in some measure, relate to it, could command my serious attention."

So numerous are the cases of this kind of experience, that time would not be profitably occupied in considering them; but it will be well to dwell a moment on another class, of opposite character, which is not less frequent.

I have often seen men who, after a prolonged indulgence in every species of wickedness and blasphemy, have suddenly experienced a change, which gave the *spiritual*, in their system, the predominating influence. At such times they become aware of the presence of the devils, who by acting upon the corruptions of their

hearts, have been successfully engaged in tempting them to sin.

More heart-rending pictures than these, of agony and distress, are seldom or never witnessed. They have many times described to me the shapes and gestures of their tormentors, and the unholy thoughts they were endeavoring to instil into their minds. While speaking to me, they would often be seized with a frenzy of fear, and would close the eyelids, and cover them with their hands, in a vain attempt to shut out the horrible spectacle. An urgent desire to commit suicide in some violent manner is generally felt, and many find it impossible to resist the temptation. Multitudes, in this way, are lost every year. I should remark, here, the delirium tremens can be produced in many ways without the use of alcohol, as by tobacco and opium.

We are thus enabled to trace, in a measure, the dealings of heaven with our fallen race. The good man worn down by disease and grief, as was Tennant, is not allowed to despair; his heart is cheered, and he is encouraged to persevere by a view of the mansions prepared for him when his toils and troubles are ended below. The bad man is suddenly arrested in his career of wickedness, by withdrawing the veil that covers invisible things, and is thus shown his prompters in vice, and the future companions he must associate with in eternity, whose torments he must share if he continues in the way of destruction. Happily, in some a change is produced. I know one to whom the warning sufficed, and who, at the present time, is serving under the banners of the Prince of Peace.

LADY. And this accounts exactly for the manner in which Elisha's servant, that you mentioned some time

since, had his eyes opened. When Elisha prayed, "Lord, I pray thee, open his eyes," he must have meant the spiritual ones; for the others could discern the surrounding danger. I suppose the Saviour and his apostles and prophets performed the miracles recorded in Scripture by means of great endowments of fascinating power.

DOCTOR. On the contrary, there is so broad a line of distinction drawn between the power of performing miracles, and that of fascinating, that it seems impious to confound the two.

The difference between the heathen fascinators and the priests of Jehovah was well shown when they finally failed to compete with Moses in showing wonders, and were forced at the last to exclaim, "This is the finger of God."

Passing Balaam and the prophets of Baal, who competed with Elijah, let us examine the witch of Endor. Artificially inducing clairvoyance, and thus holding intercourse with familiar spirits, was punishable by death in Israel.

LADY. I would ask if you think the woman fascinated Saul?

DOCTOR. By no means; the whole scene in the 19th chapter of Samuel has its counterpart in many a similar transaction of the present day. A friend of mine once wishing to obtain intelligence of a son who had been dead about three years, went to the house of a clairvoyant. At his request I was present. The husband of the clairvoyant put her to sleep, and, in a little time she announced the fact of her spiritual state, and soon afterwards found the gentleman's son. Messages were given and received by both parent and child, through the me-

dium of the clairvoyant, and my friend departed satisfied : although I still felt incredulous.

When Saul entered the woman of Endor's house, the latter was evidently unaware of his character ; and it was only upon a strong pledge she consented to employ her art. The moment she entered the clairvoyant state, however, she was at once aware of the rank of her guest, and exceedingly frightened at the consequences. Our translation reads as if she was scared at Samuel, but this was evidently not the case—witness the cry, “ Why hast thou deceived me ? for thou art Saul.” When, after he had succeeded in tranquilizing her personal fears, she gave the description of her spiritual visitant, Saul perceived that it was Samuel, and bowed himself to the ground. The conversation occurred through the woman, who, on being awakened when it was finished, had so little recollection of all the occurrences as to be totally unaware of his rank, and persuade him to eat in her house and recover his exhausted strength.

The manner in which the magicians were enabled to foretell events is graphically shown in the 22nd chapter of the first book of Kings : “ I saw the Lord sitting on his throne, and all the host of heaven standing by him on his right hand and on his left. And the Lord said, Who shall persuade Ahab, that he may go up and fall at Ramoth-Gilead ? And one said in this manner, and another said in that manner. And there came forth a spirit and stood before the Lord, and said, I will persuade him. And the Lord said unto him, Wherewith ? And he said, I will go forth, and I will be a lying spirit in the mouth of all his prophets. And he said, Thou shalt persuade him, and prevail also : go forth and do so.”

Of course, then, when the king, rejecting the advice of Jehovah's minister, sought counsel of his own seers, they gave him the revelations of the false familiar. And it was not the only time evil befell man, when, "as the sons of God came to present themselves before the LORD, Satan came also amongst them."

When Naaman came to Elisha to be healed from his leprosy, it was evidently with the expectation of visiting a more powerful fascinator than any in his own country. Elisha, to render him aware of his error, would not let him enter the house, but as soon as the horses and chariot stopped at his door, sent out a messenger, saying: "Go and wash in Jordan seven times, and thy flesh shall come again to thee, and thou shalt be clean." But Naaman was wroth, and went away and said: "Behold, I thought, *he will surely come out to me*, and stand and call on the name of the Lord his God, and *strike his hand over the place*, (in the context it reads, *move his hand up and down* over the place), and recover the leper."

LADY. I have always been struck with the narrative myself, but your view explains the whole matter to my entire satisfaction, and I do not wonder at the effect it produced on Naaman's mind, to cause him to renounce his idolatry, when he returned cured out of the river, after his servants persuaded him to obey the prophet's injunction.

DOCTOR. These instances will show how totally out of the power of all physiological explanations were the miracles. I have before mentioned the accusation brought against our Saviour of having gained his wonderful powers by stealing magic secrets from the Egyptian temples. Had those who preferred the charge been as

open to conviction as the idolator Naaman, but little observation would have convinced them of its groundlessness.

LADY. Did the magicians ever pretend to cast out devils?

DOCTOR. Our Saviour presumes that power in common use amongst them when he says, (Matt. xii., 27,) in answer to their remark of his casting out devils by the power of Beelzebub: "And if I by Beelzebub cast out devils, *by whom do your children cast them out?*" Josephus accounts for this power in speaking of Solomon, whose sagacity and wisdom he pronounces to exceed those of the ancients; "insomuch that he was in no way inferior to the Egyptians, who are said to have been beyond all men in understanding; nay, indeed it was very evident that their sagacity was very much inferior to that of the king's." "God also enabled him to learn that skill which expels demons, which is a useful science to men. He composed such incantations, also, by which distempers are alleviated; and left behind him the manner of using exorcisms, by which they drive away demons, so that they never return; and this method of cure is of great force until this day. For I have seen a certain man of my own country, whose name was Eleazar, releasing the people that were demoniacal in the presence of Vespasian, and his sons, and his captains, and the multitude of his soldiers; and the manner of the cure was this: he put a ring, that had a root of one of those sorts mentioned by Solomon, to the nostrils of the demoniac, after which he drew out the demon through his nostrils; and when the man fell down, he adjured him to return unto him no more, making still mention of Solomon, and reciting the incanta-

tions which he composed. And when Eleazar would demonstrate to the spectators that he had such a power, he set a little way off a cup or basin full of water, and commanded the demon as he went out of the man to overturn it; and thereby let the spectators know that he had left the man. And, when this was done, the skill and wisdom of Solomon were shown very clearly.”

LADY. After all, the practice of divination was forbidden by the Jewish law, and the penalty was death. If it deserved so severe a punishment in those days, how can it be harmless in our own?

DOCTOR. In former times, the higher powers of fascination were universally abused, and made to subserve idolatry. Those who practised it, sedulously kept the people in perfect ignorance as to its real nature. Even when fascinating, the priests continually chanted magic verses, to which all the curative powers were ascribed. Still it appears to have been lawful to use it for benevolent purposes, as the physicians did not scruple to employ its influence for king David.

LADY. Casting out devils, from an account given in Acts xix, 13, was not always attended with safety: “Then certain of the vagabond Jews, exorcists, took upon themselves to call over them which had evil spirits the name of the Lord Jesus, saying, We adjure you by Jesus, whom Paul preacheth. And there were seven sons of one Sceva, a Jew, and chief of the priests, which did so; and the evil spirit answered and said, Jesus I know, and Paul I know, but who are ye? And the man in whom the evil spirit was, leaped on them and overcame them, and prevailed against them, so that they fled out of that house naked and wounded.”

DOCTOR. It was not only among the ancients that

false religions, based on assumptions and supported by the pretended miracles of fascination, existed; there is quite as much of this kind of imposture prevalent in modern times.

Some years ago, in the town of Saco, in Maine, lived Robert Cochran, a man who, by pretending to a more than ordinary share of inspiration—working wonders, curing diseases by the laying on of hands, and other apparent miracles—created a schism in the church to which he belonged, drawing after him a crowd of zealous followers. Upon his death, as his mantle did not descend to another, the society declined in numbers, until, finally, nothing more was heard of the schismatics for a long period. Some time afterward, when the sect had nearly been forgotten, a man—who, it was known, had many years before embraced Cochran's tenets, and had, since then, lived a life of perfect seclusion—entered the town on business. Passing by a lawyer's office, his attention was attracted by a gentleman in it fascinating the lawyer's son. He stood, transfixed with astonishment, before the door, until the process was completed and the boy asleep; when he exclaimed aloud, "My God! that is the way in which Robert Cochran used to give the Holy Ghost."

The Mormons rest their claims of being the true church on the same basis: "Is any sick among you, let him send for the elders of the church, and let them pray over him, anointing him with oil in the name of the Lord, and the prayer of faith shall save the sick man." It is a notorious fact that the exhibition of this proof, as they wish it to be supposed, of apostolic power, has been the means of converting the majority of that deluded sect. Some three years since, I attended a Mormon

lady, who had disease of the heart, with marked success. One day, while operating, an elder of the faith, who stood by, remarked that I possessed the gift of laying on of hands. I paid very little attention to his remark at the time; but some weeks afterward, while visiting a friend one evening, I heard a lady explaining the tenets of Mormonism, and triumphantly quoting her own case as an illustration of the fact of their possessing apostolic power, more especially the gift of healing by laying on of hands; she had frequent attacks of *tic doloieux*, and nothing except that rite of the Mormon church had ever sufficed, for one moment, to alleviate the pain.

She was speaking with considerable animation, and had produced a powerful impression on the minds of those present, but was suddenly arrested, in the midst of her interesting and enthusiastic discourse, by an attack of that horrid disease. Finding that she was suffering the most exquisite agony, I rose rather hesitatingly—for I dislike scenes—and offered to relieve her, giving her the assurance that one of the Mormon elders had pronounced me in possession of the gift. The drowning will catch at a straw; and my proposition was assented to, but evidently without any hope of success on the part of the sufferer. In less than a minute—for her system had been prepared by repeated fascinations—she was powerfully under my influence, and the relief was immeasurably greater than it had ever been before. After awaking the lady, I explained the whole matter to those present; and it is very probable that but few of my hearers ever undertook a pilgrimage to the holy city of Nauvoo.

In classifying the fanatical sects, the Swedenborgians

follow the Mormons. Their name is derived from Emmanuel Swedenborg, a Swedish philosopher who became clairvoyant in the fifty-third year of his age, in 1743. The ascendancy of the *spiritual* over the *material* occurred naturally in him, probably owing to some defect in the constitution; for intense study and a sedentary life paved the way for this change. Swedenborg rejected *faith*—that is, would not believe anything which could not be demonstrated to the understanding—the faculty that judges according to the senses—and of course would not receive any religion, the doctrines of which he could not perfectly comprehend.

He ardently desired a knowledge of the soul, and the method he took to procure this knowledge gives a good illustration of his character. He tried to obtain his wish by confining his experiments to the dead body. To give his own words: “The body being her (the soul’s) resemblance, image, and type, for this purpose I am resolved to study her whole anatomy, from top to toe.” Had he but studied the laws of life in their living operation, he would have escaped the errors he afterward blundered into.

LADY. Such a mode of operation seems to me about as rational as going into a printer’s office when he is out, and trying to form an idea of his countenance from an examination of the type lying around; or inspecting a worn-out and cast-off steam-engine, with an idea to investigate the properties of steam: life in the one case, and vapor in the other, (the only things that can give the required information,) being equally absent.

DOCTOR. Swedenborg, not finding his own observations very satisfactory, calls to his aid the observations

of others, and professes, on this subject, to have obtained the greater part of his knowledge from books, and those written by men who, like himself, from the shape of fibre and spiracle, endeavored to diagnose the functions and mode of operation of each organ. His philosophical works are filled with such nonsense as this, and, as he proceeds, there is a gradual and legitimate degeneration into downright materialism of a modified character; he proclaimed all life to consist in an influx from Deity, and that a plant, a dog, and a man, differ, in reality, only in the shape of their receptacles. You will easily understand how he gained this idea, by considering the brains of different animals, and considering that of man as only a little more powerful and complicated than his inferiors in the animated scale. The study of living nature would have taught him the difference between the faculty, judging by sense, and that in which reason, free-will, and self-consciousness existed. Knowledge, on such a subject, gained from the dead body, is only such

———“ as putrefaction breeds  
In fly-blown flesh, whereon the maggot feeds,  
Shines in the dark; but, ushered into day,  
The stench remains—the lustre dies away.”

Swedenborg was a moralist. His pride dispensed with a crucified Saviour, and consequently a Trinity. “The truth is, that the division of God, or of the Divine essence, into three persons, each of which by himself, or singly, is God, leads to the denial of God.” “It is as if there should be Unity and Trinity painted as a man with three heads upon one body, or with three bodies under one head, which is the form of a monster. *If any one should enter heaven with such an idea, he would*

*certainly be cast out headlong, although he should say that the head or heads signified essence, and the body or bodies distinct properties."*

LADY. Do you not think that a person who is really honest in an erroneous opinion will be saved?

DOCTOR. I do not believe that erroneous opinions of the doctrines of salvation can be honestly entertained. Our Saviour tells us: "He that doeth the will of my Father shall *know* him that sent me." He has promised his Spirit to guide us into all truth. Consequently, if we *really* want instruction, by the perusal of the Scriptures, and prayer, with an active, watchful life, we can obtain all we wish from Him who giveth wisdom to all men liberally, and upbraideth not.

Following the example of many others who preceded him, Swedenborg allegorized the Scriptures, with the exception of the Epistles, which, sturdily resisting all such attempts, he pronounced wanting in an internal sense. He fortifies the dogmas of his system by direct consultation with, and advice from, the celestial powers. Finally, buoyed up beyond measure, he declared that the second coming of Christ was manifested in his person, and that his illumination (clairvoyance) ushered in the last judgment, which took place, not on earth, but in the spiritual world. Among other interesting matters, we are informed, by him, that in the interior of Africa exists a race of spiritual believers (the term he applied to his disciples); that marriages take place in heaven as well as upon earth, our Saviour's words on that subject being figurative; that God resembles a man in shape, his body forming the universe, each atom being a solar system; that a man consists of five spirits, one contained within the other, like a nest of apothe-

cary's pill-boxes ; man is not naturally aware of his, only he (Swedenborg) being permitted to see and reveal the mystery ; that there is a purgatory of thirty years ; that in heaven there are separate places for different nations ; that, in heaven, God is seen by the angels, with the right eye as a sun, with the left eye as a moon ; that there are lower animals in the spiritual world ; sickness exists there, etc., etc.

Several well-attested cases of Swedenborg's clairvoyant powers are recorded. Once, while dining with a friend, at a place many miles distant from his own town, he suddenly rose and walked out in the open air, seemingly in great agitation. At length he entered the house, apparently composed, and informed the company present that there was a great conflagration near his own residence, and that he had been fearful for its safety ; but it had just been quenched within one door of his house. The next post brought a full and perfect confirmation of all he had said.

At another time, when the queen of Sweden was jesting with Swedenborg on account of his pretensions to intercourse with the spiritual world, he offered to convince her of the fact by any proof she could propose. She told him that the late king, her husband, at the moment of death, when she was alone with him, had whispered something important to her, and if he (Swedenborg) could tell her what it was, she would be satisfied that he had spiritual communication. The next afternoon, Swedenborg called on her, mentioned that he had seen her husband, and had been informed by him what were his last words, which he then told the queen. Her majesty immediately swooned away, and, on recovering, expressed her astonishment : declaring that she

had no longer any doubt relative to the philosopher's power.

Swedenborg taught that the spirit gives shape to the body, and if any member (as a leg) is lost, still the perfect spiritual shape is preserved. Some persons confirm this view by instancing cases where pain remains in the toes after the limb to which those toes belonged has been cut off.

LADY. Do such cases ever occur?

DOCTOR. Very frequently. The next day, and sometimes for months after amputation, considerable pain is felt in the excised member. After the nerves have habituated themselves to their new relations, it ceases. Physiologists account for this singular matter in various ways; but many consider the spiritual solution the best. He also taught that after death, as the body remained in exactly the same shape, it was very difficult, from the preconceived notions of that state, for the deceased to really believe they were in another world. He seems to entertain much dislike to Calvin, whose entrance to the spiritual world he thus describes: "I have heard (from the angels) that when he first came into the spiritual world, he believed no otherwise than that he was still in the world where he was born; and, although he heard from the angels who were associated with him at his first entrance, that he was now in their world, and not in his former world, he said, 'I have the same body, the same hands, and the like senses.' But the angels instructed him that he was now in a substantial body, and that before he was not only in the same, but in a material body, which invested the substantial; and that the material body had been cast off and the substantial remained, which is man. This, at first, he understood;

but the next day, etc.” As we have spent sufficient time on Swedenborg, I must conclude by mentioning that his religion was evidently formed before his illumination, and that, clairvoyant only in a low degree, his philosophy every where chimes in with his revelations.

LADY. Have others ever given to the world any similar experience?

DOCTOR. Many have done so; of whom the seeress of Prevorst is an instance. In 183—, in the upper part of our city, a boy resided in whom this anomaly existed. A Methodist minister lived in the same house, and being much interested in the boy, would often take him as a companion while visiting his charge. The boy would often cross the street to avoid the proximity of some one passing; and, upon being asked the reasons for his conduct, would reply, “that the person was wicked, and had given evil spirits power over him, and he could see them flocking round, filling his mind with evil suggestions.” Some time after this, two young ladies passed a night in attendance upon a poor woman who was dying; her children, a boy and two girls, were in the room. Just before her death, she called the boy to her, and, after a little conversation, they heard her remark, “Is that all?” While his mother was dying, the boy fell upon the floor in a convulsive fit, in which he continued, despite of all assistance, some ten minutes; but at last rose, exclaiming, “Mother is happy, and I am satisfied!” and was perfectly calm afterwards. The ladies seized a chance, afforded by the temporary absence of the boy, to ask the girls what all this meant; they replied, that their brother could see spirits, and their mother, wishing to find out what some dark forms

around her bed were saying, he told her they merely came to carry her off, when she replied, "Is that all?" On inquiry, they found it was the same boy with whom the Methodist minister was acquainted.

It is probable that the prophets in Israel, in ancient times, had the powers of the inner man developed. This change in the system seems to have been the test Elijah gave Elisha, whether his request would be granted. "And it came to pass, when the Lord would take up Elijah into heaven by a whirlwind, that Elijah went with Elisha from Gilgal," etc. "And it came to pass, when they were gone over, that Elijah said unto Elisha, Ask what I shall do for thee before I am taken from thee. And Elisha said, I pray thee, let a double portion of thy spirit be upon me. And he said, Thou hast asked a hard thing; nevertheless, if *thou see me when I am taken from thee*, it shall be so unto thee," etc. "And it came to pass, as they still went on and talked, that behold there came a chariot of fire, and horses of fire, and parted them both asunder; and Elijah went up by a whirlwind into heaven, and Elisha *saw it.*" etc.

## CONVERSATION VI.

### STAGES IN DYING.

DOCTOR. As we have considered the various stages of fascination, from a mere quickening of the senses to death, it will be well to consider this last a little more in detail; as, in doing so, we shall in a measure review the others.

LADY. Does the dying person pass through the six stages in regular succession?

DOCTOR. I believe that is generally the case.

LADY. But how then do you account for the extreme pain that is often felt in dying? The stages of fascination soothe pain—they do not cause it.

DOCTOR. That is very true; and when these stages really commence there is no longer any pain; but up to the first stage the fatal disease exerts unlimited sway. After the fourth commences, bodily insensibility is an inevitable consequence; the violent convulsions of the muscles do not cause suffering in the mind. Dr. Adam Clarke, when relating his recovering from drowning, stated to Dr. Lettsom that, during the period of his apparent unconsciousness, he felt a new kind of life. He says, “Now I aver, 1st. That, in being drowned, I felt no pain. 2d. That I did not, for a single moment, lose my consciousness. 3d. I felt indescribably happy; and though dead, as to the total suspension of all the functions of life, yet I felt no pain in dying; and I take it for granted, from this circumstance, those who die by

drowning feel no pain, and that probably it is the easiest of all deaths. 4th. That I felt no pain till once more exposed to the action of the atmospheric air; and *then* I felt great anguish and pain in returning to life, which anguish, had I continued under water, I never should have experienced," etc.

Dr. Moore cites Mr. Green, who, in his diary, mentions a person who had been hung and cut down on a reprieve, who, being asked what were his sensations, stated that the preparations were dreadful beyond expression, but that, on being dropped, he instantly found himself amidst fields and rivers of blood, which gradually acquired a greenish tinge. Imagining that if he could reach a certain spot he should be easy, he seemed to himself to struggle forcibly to attain it, and then he felt no more. Schiller, when dying, was asked how he felt. "Calmer and calmer," he replied. Dr. Moore says that when the vital flame flickered, almost extinguished, the heart faltering with every pulse, and every breath a convulsion, he said to a dying believer, who had not long before been talking of undying love, "Are you in pain?" and the reply, with apparently the last breath, was, "It is delightful!" In another person, in whom a gradual disease had so nearly exhausted the physical powers that the darkness of death had already produced blindness, the sense of God's love was so overpowering, that every expression, for many hours, referred to it in rapturous words, such as, "This is life—this is heaven—God is life—*I need not faith—I have the promise!*"

LADY. I would ask if there is any certain sign by which we may recognize death so as to prevent burying alive?

DOCTOR. Only one, and that is putrefaction. Dendy cites several cases of premature interment, some of which I will mention :

On the exhumation of the Cimetiere des Innocents at Paris, during the Napoleon dynasty, the skeletons were many of them discovered in attitudes struggling to get free ; indeed some, we are assured, were partly out of their coffins. So noted was this matter in Germany, as to give rise to a custom of placing a bell-rope in the hand of a corpse for twenty-four hours before burial.

Miss C. and her brother were the subjects of typhoid fever. She seemed to die, and her bier was placed in the family vault. In a week her brother died also, and when he was taken to the tomb, the lady was found *sitting in her grave-clothes* on the steps of the vault, having, after her waking from the trance, died of terror or exhaustion.

A girl, after repeated faintings, was apparently dead, and taken as a subject into a dissecting room in Paris. During the night, faint groans were heard in the room ; but no search was made. In the morning it was apparent that the girl had *attempted to disengage herself from the winding-sheet*, one leg being thrust off from the tressels, and an arm resting on an adjoining table.

The emperor Zeno was prematurely buried ; and when the body was soon after casually discovered, it was found that he had, to satisfy acute hunger, *eaten some flesh from off his arm*.

LADY. Have there not been cases in which recovery has taken place ?

DOCTOR. None that bear any proportion to the premature interments. A romantic story is told of a young French lady at Paris, who was condemned by her father

to a hated marriage, while her heart was devoted to another. She fell into a trance and was buried. Under some strange influence her lover opened her grave, and she was revived and married. Dendy tells a story of another strange lady, who was actually the subject of an anatomist. On the existence of some faint signs of vitality, he not only restored the lady to life, but united himself to her in marriage.

Bourgeois tells that a medical man, in 1833, from the sudden influence of grief upon the organic system, sunk into a cataleptic state, but his consciousness never left him. The lamentations of his wife, the condolence of friends, and the arrangements regarding his funeral, were all distinctly heard. Perfectly aware of all that was going on around him, he was placed in the coffin, and carried in solemn procession to the grave. As the solemn words, "Earth to earth," were uttered, and the first clod fell upon his coffin lid, so sudden an influence was produced upon his organic system by terror, as to neutralize the effect of grief—he shrieked aloud, and was saved.

A story is related of a lady who fell into a cataleptic state after a violent nervous disorder. It seemed to her, as if in a dream, that she was really dead; yet she was perfectly conscious of all that happened around her in this dreadful state. She distinctly heard her friends speaking and lamenting her death at the side of her coffin: she felt them pull on her dead clothes, and lay her in it. This feeling produced a mental anxiety which was indescribable. She tried to cry, but her soul was without power, and could not act on her body. She had the contradictory feeling as if she were in her own body, and yet not in it at the same time. It was as

equally impossible for her to stretch out her arm or to open her eyes as to cry, although she continually endeavored to do so. The internal anguish of her mind was, however, at its utmost height when the funeral hymns were sang, and when the lid of the coffin was about to be nailed on. The thought that she was to be buried alive was the first one which gave activity to her soul, and caused it to operate on her corporeal frame.

Abbe Menon tells of a cataleptic girl, who was doomed to dissection; when laid on the table, the first cut of the knife awoke her and she lived. Less fortunate, says Dendy, was Cardinal Somaglia, who, falling into *syncope* from intense grief, it was decided that he should be opened and embalmed. As the surgeon's knife punctured the lungs, the heart throbbed, and the cardinal attempted to avert the knife with his hand; but the DIE was cast, and he *died*.

A gentleman was apparently seized with apoplexy while at cards. A vein was opened in both arms, but *no blood flowed*. He was placed in a room with two watchers, who slept, alas! too long; for, in the morning, the room was deluged with blood from the punctures, and his life was gone.

LADY. Did the persons who recovered relate any spiritual views?

DOCTOR. In some cases; but the most of them experienced nothing more than a separation between organic and animal life, so complete, indeed, as to deprive them of the use of the voluntary muscles for a time. A review of these facts will justify the conclusion that interment is wrong until putrefaction commences.

Wonderful stories have been related in all ages about the wonders of trance, or the fifth degree. Moore gives

the substance of one from Plutarch : Thespesios of Soli fell violently on his neck, and was supposed to be dead. Three days after, however, when about to be interred, he recovered. From this time, a wonderful change was apparent in his conduct ; for he had been licentious and prodigal, but ever after was devout, noble, and conscientious. On his friends requiring the reason of this strange conversion, he stated that during his apparent death, his rational soul had experienced marvellous vicissitudes ; his whole being seemed at first on a sudden to breathe, and to look about it on every side, as if the soul had been all eye, while, at the same time, he felt as if gliding gently along, borne upon a stream of light. Then he seemed to meet a spiritual person of unutterable loveliness, who conducted him to various parts of the unseen world, and explained to him the mysteries of divine government, and showed him the manner in which wickedness meets its reward. This vision exerted all the influence of truth upon his mind, and entirely altered his character and conduct.

The Methodist denomination afford many strange instances of singular experience, so well known that it would be useless to repeat them. We will conclude the degrees by a chapter from Dr. Nelson, who, in his *CAUSE AND CURE OF INFIDELITY*, (a work published by the American Tract Society, and which ought to lay on the shelf of every family in the land, with the Bible and Bunyan's *Pilgrim's Progress*; a work, too, which no child of mine, able to tell the letters, should ever fail to peruse and commit to memory,) mentions several cases of the opening of the spiritual eye. The unbeliever, at the point of death, *sees* the reality of those things at which he formerly scoffed ; he commences the

passage of the river (a transition of the stages) with stoical indifference, but before reaching the other side, evinces the most terrible despair, and the parting spirit bids adieu in a wail of agony. The follower of the Man of Calvary approaches the brink with fear, but ere long, the choral music of the seraphim proves a cordial to his fainting spirit, he pants to enter the blessed abodes he sees opening before him, and the rapturous exclamation, "Lord, receive my spirit!" announces that he sleeps in Jesus. You are sufficiently prepared to appreciate the physiological state he describes without further explanation.

#### OBSERVATIONS ON MAN'S DEPARTURE.

"While attending medical lectures at Philadelphia, I heard, from the lady with whom I boarded, an account of certain individuals who were dead to all appearance, during the prevalence of the yellow fever in that city, and yet recovered. The fact that they saw, or fancied they saw, things in the world of spirits, awakened my curiosity.

"She told me of one, with whom she was acquainted, who was so confident of his discoveries that he had seemingly thought of little else afterward, and it had then been twenty-four years. These things appeared philosophically strange to me, for the following reasons:—

"First: Those who, from bleeding or from any other cause, reach a state of *syncope*, or the ordinary fainting condition, think not at all, or are unable to remember any mental action. When they recover, it appears either that the mind was suspended, or they were unable to recollect its operations. There are those who believe on either side of this question. Some contend for suspension; others deny it, but say we never can recall thoughts formed while the mind is in that state, for reasons not yet understood.

"Secondly: Those who, in approaching death, reach the first state of insensibility, and recover from it, are unconscious of any mental activity, and have no thoughts which they can recall.

"Thirdly: If this is so, why, then, should those who had travelled further into the land of death, and had sunk deeper into the condition of bodily inaction, when recovered, be conscious of mental action, and remember thoughts more vivid than ever had flashed across their souls in the health of boyhood, under a vernal sun, and on a plain of flowers?

"After this, I felt somewhat inclined to watch, when it became my business, year after year, to stand by the bed of death. That which I saw

## STAGES IN TRANCE.

not calculated to protract and deepen the slumbers of infidelity, but rather to dispose toward a degree of restlessness; or, at least, to further observation. I knew that the circle of stupor, or insensibility, drawn around life, and through which all either pass, or seem to pass, who go out of life, was urged by some to prove that the mind could not exist unless it be in connection with organized matter. For the same reason, others have contended that our souls must sleep until the morning of the resurrection, when we shall regain our bodies. That which I witnessed for myself, pushed me (willing or unwilling) in a different direction. Before I relate these facts, I must offer something which may illustrate, to a certain extent, the thoughts toward which they pointed.

“If we were to stand on the edge of a very deep ditch or gulf, on the distant verge of which a curtain hangs which obstructs the view, we might feel a wish to know what is beyond it, or whether there is any light in that unseen land. Suppose we were to let down a ladder, protracted greatly in its length, and ask a bold adventurer to descend and make discoveries. He goes to the bottom, and then returns, telling us that there he could see nothing—that all was total darkness. We might very naturally infer the absence of light there; but if we concluded that his powers of vision had been annihilated, or that there could surely be no light in the land beyond the curtain, because, to reach that land, a very dark ravine must be crossed, it would have been weak reasoning; so much so, that, if it contented us, we must be easily satisfied. It gave me pain to notice many—nay, many physicians—who on these very premises, or on something equally weak, were quieting themselves in the deduction that the soul sees no more after death. Suppose this adventurer descends again, and then *ascends* the other side, so near the top that he can reach the curtain and slightly lift it. When he returns, he tells us that his vision had been suspended *totally* as before, but that he went nearer the distant land, and it was revived again; that, as the curtain was lifted, he saw brighter light than he had ever seen before. We would say to him: ‘A certain distance does suspend; but inaction is not loss of sight: only travel on further, and you will see again.’ We can understand that any one might go to the bottom of that ravine a thousand times; he might remain there for days, and, if he went no further, he could tell, on his return, nothing of the unseen regions.

“Something like this was illustrated by the facts noted during many years’ employment in the medical profession. A few cases must be taken as examples from the list.

“I was called to see a female, who departed under an influence which causes the patient to faint again and again, more and still more profoundly, until life is extinct. For the information of physicians, I mention, it was uterine hemorrhage from inseparably-attached placenta. When recovered from the first condition of syncope, she appeared as unconscious, or as destitute of activity of spirit, as others usually do. She sank again and revived: it was still the same. She fainted more profoundly still; and

when awake again, she appeared as others usually do who have no thoughts which they can recall. At length she appeared entirely gone. It did seem as though the struggle was forever past. Her weeping relatives clasped their hands and exclaimed: 'She is dead!' but, unexpectedly, she waked once more, and, glancing her eyes on one who sat near, exclaimed: 'Oh, Sarah, I was at an entirely new place!' and then sunk to remain insensible to the things of the *place* we live in.

"Why she, like others in fainting, should have no thoughts which she could recall, when not so near death as she afterward was when she had thought, I could not clearly explain. Why her greatest activity of mind appeared to happen during her nearest approach to the future world, and while so near that, from that stage, scarcely any ever return who once reach it, seemed somewhat perplexing to me. I remembered, that in the case recorded by Dr. Rush, where the man recovered who was, to all appearance, entirely dead, his activity of mind was unusual. He thought he heard and saw things unutterable. He did not know whether he was altogether dead or not. St. Paul says he was in a condition so near to death, that he could not tell whether he was out of the body or not, but that he heard things unutterable. I remembered that Tennant, of New Jersey, and his friends, could not decide whether or not he had been out of the body; but he appeared to be so some days, and thought his discoveries *unutterable*. The man who cuts his finger and faints, recovering speedily, has no thoughts, or remembers none: he does not approach the distant edge of the ravine. These facts appeared to me poorly calculated to advance the philosophical importance of one who has discovered from sleep, or from syncope, that there is no other existence, because this is all which we have seen. They appeared to me rather poorly calculated to promote the tranquility of one seeking the comforts of atheism. For my own part, I never did desire the consolations of everlasting nothingness; I never could covet a plunge beneath the black wave of eternal forgetfulness, and cannot say that these observations, in and of themselves, gave me pain; but it was evident that thousands of the scientific were influenced by the weight of a small pebble to adopt a creed—provided that creed contradicted Holy Writ. I had read and heard too much of man's depravity, and of his love for darkness, not to see that it militated against my system of deism, if it should appear that the otherwise learned should neglect to observe, or if observant, should be satisfied with the most superficial view, and, seizing some shallow and questionable facts, build hastily upon them a fabric for eternity.

"In the cases of those who, recovering from yellow fever, thought they had enjoyed intercourse with the world of spirits, they were individuals who had appeared to be *dead*.

"The following fact took place in recent days. Similar occurrences impressed me during years of observation. In the city of St. Louis, a female departed, who had a rich portion of the comforts of Christianity

It was after some kind of spasm, that was strong enough to have been the death-struggle, that she said—in a whisper, being unable to speak aloud—to her young pastor: ‘I had a sight of home, and I saw my Saviour!’

“There were others, who, after wading as far as that which seemed to be the middle of the river, and, returning, thought they had seen a different world, and that they had an antepast of hell. But these cases we pass over, and look at facts which point along the same road we have been travelling.

“I was surprised to find that the condition of mind in the case of those who were dying, and of those who only *thought* themselves dying, differed very widely. I had supposed that the joy or the grief of death originated from the fancy of the patient, (one supposing himself very near to great happiness, and the other expecting speedy suffering,) and resulted in pleasure or apprehension. My discoveries seemed to overturn this theory. Why should not the professor of religion who believes himself dying, when he really is not, rejoice as readily as when he *is* departing if his joy is the offspring of expectation? Why should not the alarm of the scoffer, who believes himself dying and is not, be as uniform and as decisive as when he is in the river, if it comes of fancied evil or cowardly terrors? The same questions I asked myself again and again. I have no doubt that there is some strange reason connected with our natural disrelish for truth, which causes so many physicians, after seeing such facts so often, never to observe them. During twenty years of observation, I found the state of the soul belonging to the dying was, uniformly and materially, unlike that of those who only supposed themselves departing. This is best made plain by noting cases which occurred.

“1. There was a man who believed himself converted, and his friends, judging from his walk, hoped with him. He was seized with disease, and believed himself within a few paces of the gate of futurity. He felt no joy; his mind was dark, and his soul clouded. His exercises were painful, and the opposite of every enjoyment. He was not dying. He recovered. He had not been in the death-stream. After this he was taken again. He believed himself dying, and he was not mistaken. All was peace, serenity, hope, triumph.

“2. There was a man who mocked at holy things. He became seriously diseased, and supposed himself sinking into the death-slumber. He was not frightened. His fortitude and composure were his pride, and the boast of his friends. The undaunted firmness with which he could enter futurity was spoken of exultingly. It was a mistake. He was not in the condition of dissolution. His soul never had been on the line between two worlds. After this he was taken ill again. He supposed, as before, that he was entering the next state, and he really was; but his soul seemed to feel a different atmosphere. The horrors of these scenes have been often described, and are often seen. I need not

endeavor to picture such a departure here. The only difficulty in which I was thrown by such cases was, 'Why was he not thus agonized when he thought himself departing? Can it be possible that we can stand so precisely on the dividing line, that the gale from both this and the coming world may blow upon our cheek? Can we have a taste of the exercises of the next territory before we enter it?' When I attempted to account for this on the simple ground of bravery and cowardice, I was met by the two following facts:—

"First, I have known those (the cases are not unfrequent) who were brave, who had stood unflinching in battle's whirlpool. They had resolved never to disgrace their system of unbelief by a *trembling* death. They had called to Christians in the tone of resolve, saying: 'I can die as coolly as you can.' I had seen those die from whom entire firmness might fairly be expected. I had heard groans, even if the teeth were clenched for fear of complaint, such as I never wish to hear again; and I had looked into countenances, such as I hope never to see again.

"Again, I had seen cowards die. I had seen those depart who were naturally timid, who expected themselves to meet death with fright and alarm. I had heard such, as it were, sing before Jordan was half forded. I had seen faces where, pallid as they were, I beheld more celestial triumph than I had ever witnessed anywhere else. In that voice there was a sweetness, and in that eye there was a glory, which I never could have fancied in the death-spasms, if I had not been near.

"The condition of the soul, when the death-stream is entered, is not the same with that which it becomes (oftentimes) when it is almost passed. The brave man who steps upon the ladder across the dark ravine, with eye undaunted and haughty spirit, changes fearfully, in many cases, when he comes near enough to the curtain to lift it. The Christian who goes down the ladder, pale and disconsolate, oftentimes starts with exultation, and tries to burst into a song when almost across.

"CASE OF ILLUSTRATION.—A revolutionary officer, wounded at the battle of Germantown, was praised for his patriotism. The war ended; but he continued still to fight, in a different way, under the banner of one whom he called the Captain of his salvation. The applause of men never made him too proud to talk of the Man of Calvary. The hurry of life's driving pursuits could not consume all his time, or make him forget to kneel by the side of his consort, in the circle of his children, and anticipate a happy meeting in a more quiet clime.

"To abbreviate this history, his life was such that those who knew him believed, if any one ever did die happily, this man would be one of that class. I saw him when the time arrived. He said to those around him: 'I am not as happy as I could wish, or as I had expected. I cannot say that I distrust my Saviour, for I know in whom I have believed; but I have not that pleasing readiness to depart which I had looked for.' This distressed his relatives beyond expression. His

friends were greatly pained, for they had looked for triumph. His departure was very slow, and still his language was: 'I have no exhilaration and delightful readiness in my travel.' The weeping circle pressed around him. Another hour passed. His hands and his feet became entirely cold. The feeling of heart remained the same. Another hour passes, and his vision has grown dim, but the state of his soul is unchanged. His daughter seemed as though her body could not sustain her anguish of spirit, if her father should cross the valley before the cloud passed from his sun. She (before his hearing vanished) made an agreement with him, that, at any stage as he travelled on, if he had a discovery of advancing glory, or a foretaste of heavenly delight, he should give her a certain token with his hand. His hands he could still move, cold as they were. She sat holding his hand, hour after hour. In addition to his sight, his hearing at length failed. After a time he appeared almost unconscious of anything, and the obstructed breathing peculiar to death was advanced near its termination, when he gave the token to his pale but now joyous daughter, and the expressive flash of exultation was seen to spread itself through the stiffening muscles of his face. When his child asked him to give a signal *if he had any happy view of heavenly light*, with the feelings and opinions I once owned, I could have asked: 'Do you suppose that the increase of the death-chill will add to his happiness? Are you to expect, that as his eyesight leaves, and as his hearing becomes confused, and his breathing convulsed, and as he sinks into that cold, fainting, sickening condition of pallid death, that his exultation is to commence?'

"It did then commence. Then is the time when many, who enter the dark valley cheerless, begin to see something that transports; but some are too low to tell of it, and their friends think they departed under a cloud, when they really did not. It is at this stage of the journey that the enemy of God, who started with look of defiance and words of pride, seems to meet with that which alters his views and expectations; but he cannot tell it, for his tongue can no longer move.

"Those who inquire after and read the death of the wife of the celebrated John Newton, will find a very plain and very interesting instance, where the Saviour seemed to meet with a smiling countenance his dying servant, when she had advanced too far to call back to her sorrowful friends, and tell them of the pleasing news.

"My attention was awakened very much by observing the *dying fancies* of the servants of this world, differing with such characteristic singularity from the fancies of the departing Christian. It is no uncommon thing for those who die, to believe they see, or hear, or feel, that which appears only fancy to by-standers. Their friends believe that it is the overturning of their intellect. I am not about to enter into the discussion of the question, whether it is, or is not, always fancy. Some attribute it to more than fancy; but inasmuch as, in many instances, the

mind is deranged while its habitation is falling into ruins around it, and inasmuch as it is the common belief that it is only imagination of which I am writing, we will look at it under the name of fancy.

“The fanciful views of the dying servants of sin, and the devoted friends of Christ, were *strangely* different, as far as my observation extended. One who had been an entire sensualist and a mocker at religion, while dying, appeared in his senses in all but one thing. ‘Take that black man from the room,’ said he. He was answered that there was none in the room. He replied: ‘There he is, standing near the window. His presence is very irksome to me—take him out.’ After a time, again and again, his call was: ‘Will no one remove him? There he is—surely some one will take him away!’

“I was mentioning to another physician my surprise that he should have been so much distressed if there had been many blacks in the room, for he had been waited on by them, day and night, for many years; also that the mind had not been diseased in some other respect: when he told me the names of two others (his patients)—men of similar lives—who were tormented with the same fancy, and in the same way, while dying.

“A young female, who called the Man of Calvary her greatest friend, was, when dying, in her senses, in all but one particular. ‘Mother,’ she would say, pointing in a certain direction, ‘do you see those beautiful creatures?’ Her mother would answer: ‘No, there is no one there, my dear.’ She would reply: ‘Well, that is strange. I never saw such countenances and such attire. My eye never rested on anything so lovely.’ Oh, says one, this is all *imagination*, and the *notions* of a *mind collapsing*; wherefore tell of it? My answer is, that I am not about to dispute or to deny that it is fancy; but the fancies differ in features and in texture. Some in their derangement call out: ‘Catch me, I am sinking—hold me, I am falling.’ Others say: ‘Do you hear that music? O, were ever notes so celestial!’ This kind of notes, and these classes of *fancies*, belonged to different classes of individuals; and *who they were*, was the item which attracted my wonder. Such things are noticed by few, and remembered by almost none; but I am inclined to believe that, if notes were kept of such cases, volumes of interest might be formed.

“My last remark here, reader, is, that we necessarily speak somewhat in the dark of such matters; but you and I will know more shortly. Both of us will see and feel for ourselves, where we cannot be mistaken, in the course of a very few months or years.”

{“Cause and Cure of Infidelity,” by Rev. David Nelson—American Tract Society. Pages 264-276.]

## CONVERSATION VII.

### OPERATION OF MEDICINE.

LADY. Here is a box of pills, sent me, this morning by a neighbor, who was in last evening when my son entered, and having noticed a number of little black spots on his face, said his blood was in a bad state, and that these pills would purify it.

DOCTOR. Frequently washing the face will remove the black spots, or worms, as they are commonly called. You have, no doubt, often noticed an oily matter on the face; the oil is made by minute glands lying under the external skin; these glands send out a tube to carry the oil to the surface; sometimes dust will collect on the orifice of the tube, and form the black spots your neighbor observed on George; the oil thus prevented egress, becomes hardened, and, when squeezed out, resembles a worm from the shape of the tube.

LADY. What is the use of this oil?

DOCTOR. To grease or lubricate the external skin, so as to prevent irritation either from atmospheric causes, or the motion of the muscles under it. To return to the pills, can you tell me of any mode by which they could gain access to the blood, to effect such an important object as purifying it?

LADY. I have always considered that medicines operated by changing the nature of the blood; but I now see that they cannot approach it; to do so requires a

passage through the lacteals, mesenteric glands, and thoracic duct ; and you have informed me that even the pyloric orifice of the stomach will not allow anything to pass it, except properly-prepared chyme.

DOCTOR. Allowing, for a moment, the pills entered the blood, what would ensue ?

LADY. They would be instantly taken out of the circulation either by the lungs or kidneys, which are excreting glands, acting, I suppose, as constables to remove everything offending and unnecessary.

DOCTOR. There is a complete system of guards stationed in our bodies, to prevent the entrance of improper substances, beginning with the warnings of taste ; but unhealthy agents, by presenting themselves too frequently, will at last accustom the sentinels to their appearance, and can then enter with impunity, and without danger of being ejected by the excretory organs.

This fact may sometimes be witnessed in the vegetable kingdom. The late Dr. Mitchell, of this city, had once sent to him a basket of saline-tasting peaches. Around the base of the tree upon which they grew, a quantity of brine had been thrown. The spongioles or leech-suckers at the roots, at first, refused the salty matter admittance, but, their excitability (irritability) being altered by continued contact, at last sucked them up, and thus a strange phenomenon was the result.

Alcohol has produced the same effect on the human system. A surgeon mentions a case of setting fire to the blood of a confirmed drunkard, which he had just drawn, its strong odor tempting the experiment.

LADY. That drunkard was not much removed. I should think, from a state of spontaneous combustion.

DOCTOR. Probably not ; saturating the system with

alcohol is perhaps one of the first steps in that process. Bone is composed of a mixture of phosphoric acid and lime (*phosphate of lime*); as an acid is the union of a base with a certain amount of oxygen, phosphoric acid is made of phosphorus and oxygen. When the chemist wishes to exhibit intense combustion to his audience, he throws a piece of phosphorus into a jar of oxygen gas, and produces a blaze rivalling that of the sun. In a healthy state of the system, the life power controls all the elements, and, as shown in the vegetable kingdom, only allows them to unite in a manner that subserves its own purposes; but when lowered and debilitated by excessive stimulus, the power becomes weakened, and finally lost in death; the elements then obey their natural affinities, and a virulent internal combustion ensues.

LADY. The drunkard, in a double sense, then, is a self-moving porter-house. Is it not very strange, that, with all the clear and accurate information known relative to the organs and their functions, such profound ignorance on the subject of the operation of medicine should exist?

DOCTOR. You have quoted, almost verbatim, the common jargon of the day; it is used by those noted for vague and confused notions on physiology. I do not think any man, who cannot give the rationale of the medicine he prescribes, should be trusted to practice. So far from being dark and in any way incomprehensible, it is easily explained, and the effects of medicine capable of being predicted with almost mathematical certainty.

The study of the different organs in the system, after the life power has departed, is called Anatomy. When living and proper agents stimulate irritability, so as to

produce a healthy action of these organs, the study is called Physiology. When improper agents or stimuli act on irritability, an alteration of the vital powers ensues, with a corresponding alteration of function, disease results, and its study is called Pathology. In the latter case, how do you imagine the system can become right again?

LADY. Only, I should think, by the direct interposition of the Almighty?

DOCTOR. After the Croton aqueduct was finished, the pipes laid down, and the whole in successful operation, do you suppose anything more was required?

LADY. Yes, a company of superintendents and laborers, to constantly inspect every part with the greatest care, and instantly repair whatever breaks in the line, or other damages might occur. The water-works would not even be safe without such a precaution.

DOCTOR. The life power has an exactly similar reserve—a distinct and powerful conservative principle, called by the older physicians, who were well acquainted with it, the *Vis Medicatrix Naturæ*. Whenever a part is injured, it is the office of this principle to come forward and repair it; so very intelligent appears its operation, that some have attributed the effects to a special interference of the Creator, and others supposed it was the rational soul.

LADY. The two seeds cited in your article on the Vegetable Kingdom, to show the difference between the forces of life and those of chemistry, brought instant conviction to my mind, and the clear conceptions I then acquired have proved serviceable since in pursuing this subject. Can you not illustrate the conservative principle in a similar manner?

DOCTOR. Have you ever read the natural history of the dormouse?

LADY. It is one of the hybernating or winter-sleeping animals; in summer it is very lively and frolicsome; as autumn approaches, it becomes very fat; and when cold weather sets in, retires to a concealed nook to sleep out the winter, but comes forth in the spring almost fleshless. While in the hybernating state, its breathing is very slow, and its temperature the same as that of the surrounding atmosphere.

DOCTOR. If a dormouse is taken from its sheltered hole, in the midst of winter, and placed in a receiver surrounded with a freezing mixture, some very curious phenomena will be evolved. As the cold increases, and the little portion it had is becoming absorbed, its breathing will be proportionally slower, and the heart pulsate more feebly; this state of things continues—the animal constantly failing—until a point is reached where remaining another moment would destroy life. At this very point an unseen power presents its workings, a hidden spring is touched, and an evident change takes place with extreme rapidity; the pulse becomes fuller and faster; a warmth diffuses itself over the surface; the eyes brighten and limbs contract; finally, in less than three minutes, the little animal is as hot, and his pulse as rapid, as in the midst of summer. Take the dormouse now out of the receiver, and expose him to the open air, and his torpidity gradually returns; it is then best to restore him to his former nook. The conservative power that preserved the dormouse from death, we name the *VIS MEDICATRIX NATURÆ*.

LADY. How is this power developed in the human body?

DOCTOR. Let us suppose a combination of peculiar circumstances, as the poisonous air of a marsh (*marsh miasmata*), to act on our excitability, an injurious influence is immediately exerted upon the system; it sinks quickly, a chill is felt, and this chill increases, lowering and depressing us, till a point is gained (as in the dormouse experiment), from which we cannot descend with life; at this point the conservative power awakes; it acts on the other powers, more especially on the brain; the nervous secretion becomes altered and radiated to every part; a change is induced, fever ensues, and with it a long train of other symptoms which finally terminate in profuse perspiration, and a restoration to health.

LADY. Then fever, and the symptoms which are commonly considered the disease itself, are nothing more than signals of battle going on within for the purpose of liberating us from injurious influences. If such be the case, why does the physician interfere in the matter at all, and of what use are doctors?

DOCTOR. The true physician remains a spectator, or rather general, watching the battle's progress with a careful eye; knowing each separate stage and crisis, and how far nature can be trusted, he often does nothing more than to clear the battle-field, (remove injurious influences,) and allow her to combat alone.

LADY. Suppose it becomes necessary for him to interfere?

DOCTOR. If nature cannot cope successfully with the existing form of disease, it is his business to substitute another form which she can conquer. It is a pathological law that there can be but one disease at a time in the system; and, acting on that law, he brings some influence stronger than the original one to bear on ex-

citability ; in other words, he must produce a different alteration of the vital powers, which he is certain the conservative principle can rectify.

LADY. If it is stronger than the original one, why should it not be still worse for the vis medicatrix to combat ?

DOCTOR. Each thing produces an influence peculiar to itself ; and our ideas of strength are only comparative. What will powerfully depress excitability may give the vis medicatrix little effort to overcome, and *vice versa*.

There is a class of bodies, which, properly prescribed, produce a decided and powerful effect on excitability ; an effect which experience has taught us it is always in the power of the vis medicatrix to subdue, and restore the system when laboring under their influence to health. Such are the medicines, as opium, camphor, arsenic, and quinine.

LADY. Is arsenic a medicine ?

DOCTOR. A very useful one. You must not suppose that its only use was to make stearine candles and German silver spoons. Nothing in nature was ever created for murderous purposes ; it is man who perverts them.

LADY. After the effect is produced on excitability by the medicine, the original malady disappears ; the physician is then treating sickness he has himself induced, and curing diseases of his own infliction.

DOCTOR. Exactly so ; and this shows you what care and judgment should be exercised in selecting the right medicine. Cases occur in which, out of a list of twenty purgatives, one alone is suited to the existing nature of the complaint.

LADY. But, doctor, how can you discover all these

separate modifications of disease ; how can you possibly tell what is going on within the system ?

DOCTOR. In the same manner as we discover the existence of a life principle and its properties—that is, by observing the phenomena they exhibit.

You will remember that every part of the body has a separate office to fulfil, that there are two lives, an animal and vegetable, in action, developing distinct series of phenomena, and that the study of all the functions in health is physiology.

When pernicious influences act, and the whole train becomes disordered, the physician, previously well acquainted with the results produced by healthy actions, observes the changed appearances disease presents to his view, and from these deduces his opinion relative to the amount of injury, and acts accordingly.

LADY. Will you be kind enough to apply this to a particular case ?

DOCTOR. I was sent for, yesterday, to see a man, who I was told had been ill for two or three days. On entering the room, and observing his countenance (often a sufficient index by itself to the experienced), its wild and haggard aspect led me to look for abdominal disease.

Sitting down by his bed, I inquired the history of the case, and then proceeded (without his suspecting it) to a regular examination.

The functions of animal life are sensation, thought, and locomotion. Everything had acquired a bitter taste to him, and noise of any kind was agonizing ; his mind was wandering ; and, to conclude with animal life, he was feeble as a child.

Turning to the vegetable system, I found respiration

more frequent than in health, but perfectly full, and no pain about the chest; the pulse fast and rather weak, but steady; this absolved the heart and lungs. Upon examining the tongue, I found it covered with a thick yellowish-brown fur, characterizing trouble in the liver; and as the lining membrane for nostrils, mouth, stomach, liver-tube, etc., is one continuous sheet, disease of one part would soon extend along the whole surface by sympathy, and, reaching the tongue, paint on its surface the cause of trouble for the information of the physician; the skin had a yellowish tinge, was at times cold and moist, and at others hot and dry; the bowels and liver, more especially the stomach, were very sensitive to pressure, and vomiting came on every ten or fifteen minutes, at which times he ejected a greenish watery fluid, etc., etc.

The day of his attack, he had been eating a very hearty dinner, with some unripe fruit as dessert, and then quickly returned to work (he was a stone-cutter) beneath a hot sun; soon getting sick, he went home, where an old woman, a great doctress of the neighborhood, had been summoned to attend him; she called his disease *janders*, and every hour or two, during the day, poured down his stomach strong tansy tea.

I concluded that his unwholesome dinner had been imperfectly digested, and when the chyme wished to pass the pyloric orifice, the sentinel tightly contracted his muscular ring, and refused admittance by blocking up the passage. The hot sun, acting on the brain, altered the nervous secretion, a share of which, being radiated to the stomach, made matters worse; and the stomach, finding itself utterly incapable, in such circumstances, of re-digesting the food, cast it off entirely by

the œsophagus; the bile that was prepared to act on the chyme being poured out about the time it ought to be there, and finding nothing to act on, altered the excitability of the sentinel at the pyloric orifice, and gained admission into the stomach, from whence it was immediately thrown out, sharing the fate of the food. To crown all, the tansy tea, by producing irritation, kept up the morbid action, involving all the parts connected with the lining membrane, as the liver, etc.

I caused him to be removed into a cool and quiet room; had his feet bathed with mustard and warm water, to assist the action of a mustard plaster on his stomach; and then caused a strong injection to be administered, leaving a powder to be taken at a certain time afterward. The vomiting ceased, the bowels moved, a terrible headache (which I forgot to mention in my notice of sensation) disappeared, etc., etc., and the next morning found him free from all pain, but very weak. *This is called the active plan of treatment.*

Very frequently, a mere removal of injurious influences, by allowing the vis medicatrix free scope, will be sufficient to cure. *This is called the expectant plan of treatment.*

LADY. Nature, after all, has to fight her own battles, the physician generally doing nothing, except, by removing injurious influences, to show fair play; the utmost he can perform is to substitute one morbid cause for another. If it were not for the vis medicatrix, there would be no science of medicine—we should all die off as soon as injured.

DOCTOR. I am glad that you understand so well what I have been endeavoring to teach; you have now

learned enough of the principles of medicine to pursue the study as much as you choose.

LADY. Does fascination act by inducing a new disease?

DOCTOR. Most assuredly; it forms no exception to the mode of operation of the others, from all of which it differs, however, by giving the vis medicatrix less effort to displace its effects. I suppose this fact will make no advice needed with regard to fascinating healthy persons, as direct disease is thereby induced.

LADY. Why did I not get well directly after the first fascination?

DOCTOR. From the influence of habit, and the same causes still acting that produced your disease in the first instance. Directly after the effect of each operation was over, and before the disease again seized upon you, the system had time to gain strength; as the intervals increased, more strength was acquired, until, at length, your frame was strong enough to resist the injurious influence, and then your recovery was complete.

LADY. In what manner does the *water cure* operate? A friend of mine was very anxious that I should try it; he thought every case of chronic disease in the continent of Europe would soon be cured at Graefenberg.

DOCTOR. I have very little doubt but that it would have killed you. You can no more expect one particular medicine, or plan of treatment, to cure all diseases, than to find one book which would suit all readers; or one coat capable of fitting all men. Wherever life is present, variety is certain to be found, as well in disease as in health. In certain cases, fascination, as a curative agent, is invaluable; but, recommend it as a succedaneum, and it is certain to do much mischief.

Hydropathy, as a curative agent, acts exactly on the dormouse principle ; it depresses until the vis medicatrix rises to the rescue. The process you will observe, has already been gone through with at the first time of the attack ; it says to nature, “ You have failed in your attempt, try again.” In many chronic cases of long standing it is certainly a valuable remedy ; that it is a new discovery, or that it will supercede all other remedies, are both ridiculous ideas.

LADY. I am aware, doctor, that you have attentively examined homœopathy ; and since such a golden opportunity presents itself for inquiry, I should be much obliged if you would tell me what it really is worth ; many of my friends think its cures are almost miraculous ?

DOCTOR. Cases of medical treatment under such circumstances, stand in the same relation to truth as the tricks of a juggler to the deductions of science ; such reports, in fact, have elicited the remark that “ medical facts are medical lies.” Whatever militates against common sense and experience cannot be received as evidence.

LADY. Their infinitesimal doses lead me to conclude that their object is to let nature, in all cases, take care of herself. Much harm cannot be done except by inducing delay.

DOCTOR. That alone should condemn the whole matter, as no where are “ delays so dangerous” as in medicine, a life often turning on an hour of time. My study of Hannehman has led me to consider him possessed of remarkable talent, and that the whole system of homœopathy is nothing more than a disguised recommendation of fascination. Do you remember how he tests the strength of his medicines ?

LADY. By the number of dilutions ; the greater the number, the more powerful the medicine.

DOCTOR. That simple fact should have led to the discovery of his meaning, the solution of his enigma. He directs his medicines to be prepared by hand, and considers them increased in strength proportionally as the hand is laid upon them : this is nothing more than a practice, long known, of *mesmerizing* medicine for patients.

LADY. Still I should have thought that where so much was at stake, he would have given some intimation of his secret more plainly than that ; that he would even in some cases direct them to fascinate.

DOCTOR. He has done so : where nature alone will cure, or the expectant plan will suffice, he directs the minimum doses ; in more serious cases, you must, to use his own words, " stroke the patient down with the palm of the hand till relief be obtained."

His object, in concealing his real sentiments, was doubtless to escape the ridicule of the age in which he lived. If he possessed an acute sense of mirthfulness, great must have been his merriment to have known that glass factories, in many countries, were solely employed blowing his little vials ; thousands of apothecaries engaged in manufacturing medicines to fill those vials ; machines inventing to prepare his triturations and dilutions ; and, finally, hosts of the sons of Esculapius, equipped with whole pharmaceutical establishments in their coat pockets, visiting their patients, and who, ever and anon, were drawing forth the *organon* of him upon whom they looked as more than mortal, to seek fresh instructions regarding the best method of dispensing sugar plums.

It is rarely that persons will take pains to examine into any system of medicine ; the small amount of medical knowledge out of the pale of the profession, owing most likely to the small amount within, has given an idea that the whole subject is nothing more than a system of guessing ; and those entertaining this view are rather pleased with homœopathy, as being a practice in which wrong guessing cannot produce much detriment.

Another source of injury to the science of medicine has been various hypotheses started by men who were not properly versed in the laws of life. During the prevalence of a certain deadly pestilence in the West Indies, the blood was, in all cases in those affected, dark, almost black. A physician, who had been bleeding a patient, found the dark blood, as soon as it gained the bowl, become of a bright healthy-looking red ; and, upon examining the matter, found the florid appearance was owing to some table salt which had been accidentally left in the bowl ; his sapient brain instantly conceived the idea that it was the loss of muriate of soda (common salt) in the blood that caused the fever. This fancied discovery changed his whole plan of treatment, and his after practice consisted in injecting solutions of salt into the veins, and giving it by the stomach. His fellow physicians followed his example as soon as the matter was published. The uniformly fatal termination of all cases treated in this absurd manner at length obliged the doctors to relinquish the practice ; but the hypothesis, like the bodies of ancient heroes, was accompanied to the grave by thousands of victims slaughtered to its honor.

LADY. What is the meaning of transfusion of blood ?

DOCTOR. It was discovered that where death would

ensue from the loss of blood, taking a supply from the veins of another and directly introducing it into that of the patient, would preserve life in many instances. The French received it with open arms, and were eager to embrace the advantages it offered. Supposing the secret of perpetual youth was made known, old age hastened to fill its veins with the blood of juvenescence. Though the majority who tried the plan fell victims to its fatal influence, it still continued to be the enthusiasm of the day till a prince of the blood royal was added to the list of victims. The laws immediately made it a penal offence, and it fell into disuse.

A knowledge of the laws of life would have prevented all this victimizing, as it would also correct many popular prejudices. You wished me, some time since, to vaccinate your son George, because more than seven years had elapsed since he had taken the cow-pox, and I could not then explain the reason why I did not think it was necessary.

Our bodies are perpetually changing; they are not the same to-morrow as to-day. This fact, which they could perceive but not explain, puzzled the ancients: "To be another, yet the same!" was the astonished exclamation of an old philosopher. By the constant absorption and deposition of matter, it has been computed that we undergo a total change every seven years; and persons informed of this, think the effect of vaccination worn off, when every particle of matter that was present in the body at the time of the operation is departed. The life principle is entirely forgotten in this estimate; impressions made on it are indelible; every particle of matter it directs to be removed, is replaced by an exactly similar particle; thus a depression in the

skin, or mark of any kind, often remains for life. When perfectly vaccinated, the system is forever surely guarded against the attacks of small-pox; but when any doubt exists relative to the former effect, it is well to repeat the operation.

You must not be surprised to find doctors often disagreeing with this explanation; for there are as many sects in medicine as in theology. Many of them, perhaps a majority, consider the human body a vast chemical laboratory, and scoff at the notion of a life power. Some of these affirm, and others deny, the existence of an immortal soul, by which last, when allowed to remain, those who believe in it solve all the living problems chemistry cannot explain.

Since the days of Hippocrates, or rather his ancestor Esculapius, there has always been a church of faithful priests of nature, who closely observed her laws and obeyed her dictates. One after another of these has added his quota to the general amount of information, till, being fully prepared for generalizing, the great principles of health and disease have been established, which no doubt will continue in force till this mortal puts on immortality. These true physicians are known under the name of VITALISTS, or observers of life.

Our opponents, when they talk of uncertainty and confusion, but proclaim the chaos existing in their own minds, on which the spirit of truth had never moved to correct disorder, and impart life and light.

## CONVERSATION VIII.

### PREVISION.

DOCTOR. The patient, while under the influence of fascination, will, in some cases, often materially assist the treatment by prescribing remedies for himself, his instinctive faculties undergoing remarkable developments.

This power has been named prevision; but I think it is susceptible of a two-fold distinction—that which relates to the organism, and by perceiving “a series of organic movements, consequent one upon the other;” and thence foretelling results; and that which is probably the communication of a superior being, in attendance upon us, and whose revelations are made only for special purposes.

We will name the first *organic*, and the second *revelated*, prevision.

LAWY. This organic prevision seems to me nothing more than a development of the *vis medicatrix naturæ*.

DOCTOR. It certainly resembles it in many particulars, and the fact of its being possessed by the lower animals to a considerable extent favors your view.

BEVER tells us that the African Arabs secure themselves from the mortal consequences attending the bite of serpents, by chewing a particular root, and washing themselves with an infusion of certain plants in water; he gives a particular account of several of these plants, some of which seem only capable of acting against the

power of the serpent; others, only against that of the scorpion; and a third sort, against both; and all will operate both as an antidote and preventive. Vargus throws considerable light on the manner in which the Arabs acquired the knowledge of these plants; he was a gentleman residing at Santa Fe, (S. A.) who was accustomed to venture into the open fields and seize the largest and most venomous serpents, from whose bite he was perfectly protected by drinking a small portion of the juice of the *quaco-witky*, and inserting some in punctures made in his hands, breast, and feet. The name of the plant is derived from the Indian term for the serpent hawk, who was observed, before attacking poisonous serpents, to suck its juice, which, when tried for the same purpose by mankind, proved equally efficacious.

An old writer long since remarked that no fact appeared better attested, in the history of human knowledge, than that of a proficiency in the art of practical physic, far beyond the scope of their other attainments; forming a curious but unfailing trait in the character of savages. Now, whether that proficiency was attained by observations made on the instincts of the lower animals, or the result of their own organic prevision in a fascinated state, it is hard to discover; perhaps it was compounded of both.

The apes of Abyssinia are reported to have, by trials on themselves, first exhibited to men the laxative properties of the *cassia fistula*. A dog having had some sheep's blood injected into his veins, was observed to immediately begin eating grass; and this was considered by the transfusers sufficient evidence that the nature of each animal resided in the blood, and that the

dog would in future partake of the qualities of the sheep. A gross error; the organic prevision of the dog warned him that to produce vomiting was to obtain relief from the pain caused by his cruel tormentors, hence his conduct; for he is commonly observed, when sick, to eat a quantity of prickly grass, an expedient that seldom fails to answer the purposes of an emetic.

LADY. I was once called, while in the country, to witness something of this kind. It was a toad fighting with a large spider; every time the toad was bitten, it ran off, and, having eaten some plantain leaves, would return to the fight. A person present, while the frog was trying to reach the plantain, covered it up; he swelled up immediately, and died in consequence.

I am aware that hogs, after being kept for some time without salt, refuse food, and greedily devour ashes or cinders in great quantities. Some time ago, I met with an anecdote of a gentleman who, when sick, never used medicine; giving, as reason, the example of a monkey in his possession, that, if ill, would abstain from food a few days, when he was always sure to recover health and spirits.

DOCTOR. But that the fascinated patients of the Egyptian temples remembered their visions, I should have classed such cases in organic prevision: as an instance of the latter faculty, I will quote a case from the report of the commission of the Royal Academy of Medicine, and vouched for by them.

“ Pierre Cazot, twenty years of age, a working hatter, born of an epileptic mother, has been subject, from ten years of age, to attacks of epilepsy, which have recurred five or six times a week up to the time when he entered the Hôpital de la Charité, in the early part of the month of August, 1827. He was at once magnetized by M. Foissac, was placed in the magnetic sleep at the third sitting, and became somnambu-

lie at the tenth, which took place on the 19th of August. It was on that day, at nine o'clock in the morning, that he announced, that on the same day, at four o'clock in the afternoon, he should have an attack of epilepsy; but that it might be prevented, if he was magnetized a little before that period. The verification of his prediction was preferred—and, therefore, no precaution was taken to prevent the paroxysm; we contented ourselves with observing him, without his having any suspicion that we were doing so. At one o'clock he was seized with a violent headache;—at three he was obliged to go to bed,—and at four o'clock precisely the paroxysm attacked him, and lasted about five minutes. Two days afterwards, Cazot being in somnambulism, M. Fouquier suddenly thrust a pin, of an inch long, between the thumb and the forefinger of the right hand; with the same pin, he also pierced the lobe of the ear;—and the eyelids being separated, the white of the eye itself was repeatedly struck with the head of the pin without occasioning the smallest indication of sensibility.

“The commission met at the Hopital de la Charité on the 24th of August, at nine in the morning, in order to observe the experiments which M. Fouquier, one of its members, proposed continuing upon this invalid.

“At this séance, M. Fouquier took his station about six feet in front of Cazot: he looked at him firmly—made use of no passes with the hands,—observed the most perfect silence, and Cazot was asleep in eight minutes. At three different times, a bottle of ammonia was held under his nose—the countenance became flushed—the breathing quickened, but he did not awaken. M. Fouquier thrust a pin an inch long into the fore-arm; afterwards, another pin was thrust to the depth of two lines, obliquely under the chest;—a third was similarly inserted into the pit of the stomach; and a fourth was thrust perpendicularly into the sole of the foot. M. Guersent pinched him in the fore-arm so severely as to leave a bruise mark;—and M. Itard leaned the whole weight of his body upon his thigh.

“We endeavored to tickle him by lightly passing a little piece of paper under the nose, upon the lips, upon the eyebrows, the eyelashes, the neck, and the soles of the feet—but nothing could awaken him. We then urged him with questions. ‘How many more attacks will you have?’ ‘During a year.’ ‘Do you know whether these attacks will be near to each other?’ ‘No.’ ‘Will you have one this month?’ ‘I shall have a fit on Monday the 27th, at twenty minutes before three o'clock.’ ‘Will it be a strong one?’ ‘It will not be half so strong as the last.’ ‘On what other day will you have an attack?’ After an expression of impatience, he answered,—‘A fortnight hence, that is to say, on the 7th of September.’ ‘At what hour?’ ‘At ten minutes before six in the morning.’

“The illness of one of his children obliged Cazot to leave la Charité on that very day, the 24th of August. But it was agreed that he should return on Monday the 27th, early in the morning, in order that the fit

which he had declared to be impending in the afternoon of that day, at twenty minutes before three, might be accurately observed

“ The steward, having refused to take him in when he presented himself for admittance, Cazot repaired to the house of M. Foissac in order to complain of this refusal. M. Foissac, as he afterwards told us, preferred dissipating this attack by magnetism, to being a solitary witness to the occurrence,—and consequently we were unable to establish the exactitude of this prevision. But it still remained for us to observe the paroxysm which he had announced for the 7th of September. M. Fouquier having caused Cazot to re-enter the hospital on the 6th, under the pretext of paying him some attentions, which he could not pay out of that establishment, had him magnetized in the course of the day of the 6th by M. Foissac, who put him to sleep by the simple act of his will, and by steadfastly looking at him. In this sleep, Cazot repeated, that the next day he should have an attack at ten minutes before six in the morning, and that it might be prevented if he was magnetized a little before. At a signal agreed upon, and given by M. Fouquier, M. Foissac, of whose presence Cazot was ignorant, awakened him in the same way as he had put him to sleep, by the sole act of his will, notwithstanding the questions which were addressed to the somnambulist, and which had no other object than to conceal from him the moment in which he ought to waken.

“ In order to be witnesses of this second attack, the commission met on the 7th of September, at a quarter before six in the morning, in the ward St. Michel, at la Charité. There they were informed, that the evening before, at eight o'clock, Cazot had been seized with headache, which had tormented him all night,—that this pain had occasioned the sensation of beating in his head, and that he had had some darting sensations in his ears. *Ten minutes before six* o'clock we witnessed the epileptic attack, characterized by contraction and stiffness of the limbs,—by the repeated and forcible tossing of the head backwards,—by the convulsive closing of the eyelids,—by the retraction of the globe of the eye towards the roof of the orbit,—by sighs,—by screams,—by insensibility to severe pinching,—and by the biting of the tongue between the teeth. This set of symptoms lasted for about five minutes, during which, he had two remissions of some seconds each, and then a painful relaxation of the limbs, and sense of general exhaustion.

“ On the 10th of September, at ten o'clock at night, the commission met again at the house of M. Itard, in order to continue its inquiries upon Cazot: the latter was in the library, where conversation had been carried on with him till half-past seven, at which time, M. Foissac, who had arrived since Cazot, and had waited in an ante-chamber separated from the library by two closed doors, and a distance of twelve feet, began to magnetize him. Three minutes afterwards Cazot said, *I think that Foissac is there, for I feel myself oppressed and enfeebled.* At the

expiration of eight minutes he was completely asleep. He was again questioned, and assured us, that in three weeks from that day, that is, on the first of October he should have an epileptic paroxysm at ten minutes before noon.

“It was desirable to observe with equal care, as on the 7th of September, the epileptic attack which he had predicted for the 1st of October. With this view, the commission met together on that day at half-past eleven, at the house of M. Georges, manufacturer of hats, No. 17, Rue des Menetriers, where Cazot lived and worked. We learned from M. Georges, that he was a very regular workman, whose conduct was excellent,—and that he was, both by the simplicity of his mind, and by his moral principles, absolutely incapable of lending himself to any deception; that he had had no attack of epilepsy since the one which the commission had witnessed at la Charité;—that not feeling himself well that morning, he had remained in his own chamber, and was not at work;—that at this moment, there was with him an intelligent man, whose veracity and discretion might be relied upon; that this man had not told him he had predicted an attack for that day;—that it appeared that since the 7th of September, M. Foissac had had some communication with Cazot, but without permitting the inference that he had in any way recalled to him his prediction, since, on the contrary, M. Foissac attached the highest importance to the circumstance, that no one should speak to the patient on the subject of what he had announced. At five minutes before twelve, M. Georges went up into a room situated immediately under that occupied by Cazot, and in one minute afterwards he came to inform us that the attack had supervened. We hastily ran to the sixth story, that is, MM. Guersent, Thillaye, Marc, Gueneau de Mussy, Itard, and the Reporter, where, on our arrival, the watch pointed at one minute to twelve by the true time. Assembled around the bed of Cazot, we distinguished the epileptic paroxysm characterized by the following symptoms: tetanic stiffness of the body and of the limbs—tossing of the head, and occasionally of the trunk of the body backwards,—a convulsive retraction, and up-turning of the eye, so that the white of the eye only is visible,—a very remarkable fullness of the face and neck,—contraction of the jaws,—partial convulsive movements of the fibres of the muscles of the right arm and fore-arm;—soon afterwards so decided a tetanic attack, that the trunk of the body was so raised as to form the segment of a circle, of which the only bases were formed by the head and the feet; which movements terminated by a sudden collapse. A few moments after this attack, that is, after one minute of relaxation, a new paroxysm, similar to the preceding one, took place; there were uttered inarticulate sounds—his respiration very frequent and interrupted,—the larynx being rapidly and violently raised and depressed; and the pulse beating from 132 to 160 in a minute:—there was no frothing at the mouth, nor contraction of the thumbs to the inside of the palm of the hand. At the end of six minutes

the paroxysm terminated by deep sighs, by relaxation of the limbs, and opening of the eyelids.

“The invalid fixed an astonished look upon the persons present, and complained of being painfully stiff, especially in the right arm.

“Although the commission could not doubt the veritable action produced by magnetism upon Cazot, even without his knowledge, and at a certain distance from him, yet they desired to acquire a new proof of this state;—and as it had been proved at the last séance, that M. Foissac had had some communication with him, and therefore *might* have told him that he had announced an attack for the 1st of October, the commission were also desirous, while submitting Cazot to some new trials, to lead M. Foissac himself into error as to the day on which his epileptic should have announced as the next for the return of the paroxysm. By this plan we should shelter ourselves from every species of connivance, even supposing that a man, whom we had always seen honest and upright, could possibly have any secret or collusive understanding with a man without education, without intelligence,—and that in order to deceive us. We will confess that we did not ourselves do this injustice, even in thought, to either the one or the other; and we feel bound to render the same testimony to MM. Dupotet and Chapelain, of whom we have more than once had occasion to speak to you.

“The commission met again on the 6th of October at noon, in the library of M. Bourdois, at which hour Cazot arrived there with his child, M. Foissac having been invited to come at half-past twelve: he was exact to his appointment, and remained in the ante-room, without the cognizance of Cazot, and without any communication with us. We sent to inform him, however, by a side door, that Cazot was seated on a sofa, placed ten feet from the door, which was closed, and that the commission requested he would magnetize, and awaken him also at that distance, he, M. Foissac, remaining in the ante-room, and Cazot in the library.

“At twenty-three minutes before *one*, while Cazot was occupied with the conversation which we carried on among ourselves, or examining the pictures which adorn the library, M. Foissac, placed in the next room, began to magnetize him: we remarked that in four minutes Cazot began slightly to droop the eyelids—that he had a restless unquiet air—and that in nine minutes he was asleep. M. Guersent, who had attended him for his epileptic attacks at the Hopital des Enfants, asked him if he remembered him:—he answered affirmatively. M. Itard inquired, when he should have a paroxysm. He replied that it would be this day four weeks, (the 3rd of November,) at five minutes after four in the afternoon. He was then asked when he should have another, to which he answered, after apparent reflection and hesitation, that it would be five weeks after the one which he had just indicated—the 9th of December, at half past nine in the morning.

“The procès verbal of this séance having been read in the presence of

M. Foissac in order that he might sign it with us, we wished, as it has been above remarked, to lead him into error: and in reading it to him, before presenting it for signature to the members of the commission, the reporter read, that the first attack of Cazot would take place on Sunday the 4th of November, whereas the somnambulist had fixed Saturday the 3rd. He practised the same deceit with regard to the second; and M. Foissac took a memorandum of these erroneous indications as if they had been exact; but having some days afterwards put Cazot into somnambulism, as he was accustomed to do, in order to dispel his headaches, he learned from him, that it was the 3rd and not the 4th of November, that he ought to have a return of the fit, and he informed M. Itard of this on the 1st of November, believing that there had been an error in the procès verbal, of which, nevertheless, M. Itard maintained the assumed correctness.

“The commission again took all the necessary precautions to enable them to observe the attack of the 3rd of November;—they met at four o’clock in the afternoon at the house of M. Georges; they learned from him,—from his wife,—and from one of the work-people, that Cazot had gone through his customary labor all the morning, till two o’clock in the afternoon, and that during his dinner, he had complained of headache; that nevertheless he had returned to his work, but that the headache increasing, and having felt giddy, he had retired to his own room—had gone to bed, and to sleep, MM. Bourdois, Fouquier, and the reporter, preceded by M. Georges, then went up stairs to Cazot’s room: M. Georges alone went in, and found him in a profound sleep, which he begged of us to observe through the door, which was partially open to the staircase. M. Georges spoke loudly to him—shook him rather rudely, pulled him by the arm without awakening him. Cazot was then seized with the painful symptoms which constitute an attack of epilepsy, and precisely similar to that which we had formerly observed upon him.

“The second attack announced at the séance of the 6th of October, for the 9th of December, that is, two months beforehand, took place at half past nine, or a quarter of an hour later than had been predicted, and was characterized by the same precursory phenomena, and by the same symptoms as those of the 7th of September, 1st of October, and the 3rd of November.

“Lastly, on the 11th of February, 1828, Cazot fixed the period of a new attack for the 22nd of the following April, at five minutes before noon: and this announcement, like the preceding ones, was verified within five minutes, that is, at ten minutes before twelve. This attack was remarkable for its violence, for the species of madness with which Cazot bit his hand and fore-arm,—for the violent and repeated shocks with which the body was distorted and for its having lasted thirty-five minutes, when M. Foissac, who was present, magnetized him. Very soon, this convulsive state yielded to the state of magnetic somnambulism,

during which Cazot got out of bed, sat down upon a chair, and said that he was very much fatigued;—that he should have two more attacks one of which should be nine weeks from to-morrow (June 23rd,) at three minutes after six. He would not fix the second attack, because he must think of what would take place beforehand, (at this moment he sent away his wife, who was present,) and added, that in about three weeks after the attack of the 23rd of June, he should go mad; that his madness would last three days, during which he should be so mischievous, that he should attack every body;—that he should even ill-treat his wife and his child; that he ought not to be left alone with them;—and that he did not know, that he should not kill an individual without intending it. It would be necessary to bleed him from both feet; ‘*then,*’ said he, ‘*I shall be well for the month of August; and once cured, the disorder will not return, whatever circumstances may happen to me afterwards.*’

“It was on the 22nd of April, that all these previsions were announced to us, and two days afterwards, the 24th, Cazot wishing to stop a runaway horse which had got the bit between his teeth, was violently thrown down against the wheel of a cabriolet, which occasioned a fracture of the left supra-orbitary ridge, and bruised him horribly. He was conveyed to the Hopital Beaujon, where he died on the 13th of May. On inspecting the body, and opening the head, there were found traces of recent membranous inflammation,—purulent collections under the integuments of the skull, and at the extremity of the choroid plexus, a substance externally white, but yellowish internally, and which contained some small hydatids.

“We see in this history a young man, subject for years to attacks of epilepsy, for which he had been treated successively at the Hopital des Enfants, and at Saint Louis, and in consequence of which he had been exempted from military service. Magnetism acted upon him, although he was perfectly ignorant of what was going on,—and he became somnambulist. The symptoms of his disorder were ameliorated; the paroxysms diminished in frequency;—his headaches, his oppression disappeared under the influence of magnetism;—he prescribed for himself a treatment appropriate to the nature of his malady, and from which he promised his restoration. Magnetized *without his knowledge*, and from a *distance*, he fell into somnambulism, and was aroused from it with the same promptitude, as if he had been magnetized close at hand. Finally, he indicated with extraordinary precision, one or two months beforehand, the day and the hour of the return of the epileptic attack. *Yet notwithstanding he was thus endowed with prevision for attacks at so great a distance of time, and even for attacks which would never take place, he did not foresee, that in two days he should meet with a fatal accident.*

“Without attempting to reconcile all which at first sight is apparently contradictory in such a history, the commission would draw your attention to the fact that the previsions of Cazot *related only to his attacks;—that they are reducible to the knowledge of organic modifications in him*

self, which were preparing, and which would arrive as the necessary result of the *interior functions*; that these previsions, although of greater extent, are really precisely similar to those of certain other epileptics, who recognize by divers premonitory symptoms, such as headache, giddiness, irritability, the *aura epileptica*, that they shall soon have an attack. Is it then surprising, that these somnambulists, whose sensations, as you have seen, are extremely acute, should be able to foresee their attacks a long time previously, according to some symptoms, or interior impressions, which escape the notice of waking men? It is in this way, gentlemen, that we may understand the prevision attested by Aretæus in two parts of his immortal works,—by Sauvages, who also records an example,—and by Cabanis. Let us also add, that the prevision of Cazot, was not absolute, and unalterable, but conditional; since in predicting an attack, he announced that it would not take place, if he was magnetized, and that in point of fact, it did not take place:—the prevision is *wholly organic, wholly interior*. Thus we easily understand, why he did not foresee an event *wholly exterior*,—that is to say, that accident led him to meet a runaway horse,—that he was imprudent enough to try to stop him, and that he received a mortal injury. Thus he might foresee an attack which was not to happen. It is the hand of a watch, which in a given time, ought to pass over a certain portion of its facial circle, and which does not describe that portion, because the watch is broken.”

Cases of revealed prevision are quite as common as those of organic, and have been known a much longer period. Socrates presented a remarkable instance of this kind. He informed his disciples that he possessed a genius, who told him future events and directed his conduct, and whom he never failed to obey. He often warned his friends (by the advice he told them of his genius,) against certain courses of action, and, in every case where they refused to profit by his counsel, disastrous results followed.

He predicted all the events of any importance in his own life, and lastly, his death and its mode. After sentence was passed on him, his enemies waited but the return of a ship to put it into execution. The night before the vessel was expected in, his disciples were grieving bitterly to think that before another evening

the philosopher would be taken from them ; he informed the sorrowful group around him that the ship had been injured at sea, and would not return for three days ; and the event happened as he predicted.

Cazotte's famous prediction was verified, even to the minutest point, in the history of the French revolution. Newnham takes it from La Harpe ; you cannot fail to be intensely interested in its perusal—its truth is undoubted.

“ It appears but as yesterday, and yet, nevertheless, it was at the beginning of the year 1788. We were dining with one of our brethren at the Academy—a man of considerable wealth and genius. The company was numerous and diversified—courtiers, lawyers, academicians, etc., and, according to custom, there had been a magnificent dinner. At dessert, the wines of Malvoisin and Constantia added to the gayety of the guests that sort of liberty which is sometimes forgetful of *bon ton*:—we had arrived in the world, just at that time when anything was permitted that would raise a laugh. Chamfort had read to us some of his impious and libertine tales, and even the great ladies had listened without having recourse to their fans. From this arose a deluge of jests against religion. One quoted a tirade from the *Pucelle* ; another recalled the philosophic lines of Diderot—

‘ Et des boyaux du dernier prêtre,  
Serrez le cou du dernier roi’—

for the sake of applauding them. A third rose, and, holding his glass in his hand, exclaimed : ‘ *Yes, gentlemen, I am as sure that there is no God, as I am sure that Homer is a fool ;*’ and, in truth, he was as sure of the one as of the other. The conversation became more serious ; much admiration was expressed on the revolution which Voltaire had effected, and it was agreed that it was his first claim to the reputation he enjoyed. He had given the prevailing tone to his age, and had been read in the ante-chamber as well as in the drawing-room. One of the guests told us, while bursting with laughter, that his hairdresser, while powdering his hair, had said to him : ‘ *Do you observe, sir, that although I am but a poor miserable barber, I have no more religion than any other ?*’ We concluded that the revolution must soon be consummated ; that it was indispensable that superstition and fanaticism should give place to philosophy, and we began to calculate the probability of the period when this should be, and which of the present company should live to see the *reign of reason*. The oldest complained that they could scarcely flatter themselves with the hope ; the younger rejoiced that they might entertain this very probable expectation ; and they congratulated the Academy

especially for having prepared this *great work*, and for having been the great rallying point, the centre, and the prime mover of the liberty of thought.

“ One only of the guests had not taken part in all the joyousness of this conversation, and had even gently and cheerfully checked our splendid enthusiasm. This was Cazotte, an amiable and original man, but unhappily infatuated with the reveries of the illuminati. He spoke, and with the most serious tone. ‘Gentlemen,’ said he, ‘be satisfied; you will all see this great and sublime revolution, which you so much desire. You know that I am a little inclined to prophesy; I repeat, you will see it.’ He was answered by the common rejoinder: ‘*One need not be a conjuror to see that.*’ ‘Be it so; but perhaps one must be a little more than conjuror for what remains for me to tell you. Do you know what will be the consequence of this revolution—what will be the consequence to all of you, and what will be the immediate result—the well-established effect—the thoroughly-recognized consequence to all of you who are here present?’ ‘Ah!’ said Condorcet, with his insolent and half-suppressed smile, ‘let us hear—a philosopher is not sorry to encounter a prophet.’ ‘You, Monsieur de Condorcet—you will yield up your last breath on the floor of a dungeon; you will die from poison, which you will have taken, in order to escape from execution—from poison which *the happiness* of that time will oblige you to carry about your person.’

“ At first, astonishment was most marked; but it was soon recollected that the good Cazotte is liable to dreaming, though apparently wide awake, and a hearty laugh is the consequence. ‘Monsieur Cazotte, the relation which you give us is not so agreeable as your *Diable Amoureux*,’ (a novel of Cazotte’s.)

“ ‘But what diable has put into your head this prison, and this poison, and these executioners? What can all these have in common with philosophy and the reign of reason? ‘This is exactly what I say to you; it is in the name of philosophy—of humanity—of liberty; it is under the reign of reason that it will happen to you thus to end your career; and it will indeed be *the reign of reason*, for then she will have her temples, and indeed, at that time, there will be no other temples in France than the temples of reason.’ ‘By my truth,’ said Chamfort, with a sarcastic smile, ‘*you* will not be one of the priests of those temples.’ ‘I do not hope it; but you, Monsieur de Chamfort, who will be one, and most worthy to be so, you will open your veins with twenty-two cuts of a razor, and yet you will not die till some months afterward.’ They looked at each other, and laughed again. ‘You, Monsieur Vicq d’Azir, you will not open your own veins, but you will cause yourself to be bled six times in one day, during a paroxysm of the gout, in order to make more sure of your end, and you will die in the night. You, Monsieur de Nicolai, you will die upon the scaffold; you, Monsieur Bailly, on the scaffold; you, Monsieur de Malesherbes, on the scaffold.’ ‘Ah!

God be thanked,' exclaimed Roucher, 'it seems that Monsieur has no eye but for the *Academy*; of it he has just made a terrible execution, and I, thank heaven . . . . . ' 'You! you also will die upon the scaffold.' 'Oh, what an admirable guesser,' was uttered on all sides; 'he has sworn to exterminate us all.' 'No, it is not I who have sworn it.' 'But shall we, then, be conquered by the Turks or the Tartars? Yet again . . . ' 'Not at all; I have already told you, you will then be governed only by philosophy—only by reason. They who will thus treat you will be all philosophers—will always have upon their lips the self-same phrases which you have been putting forth for the last hour—will repeat all your maxims—and will quote, as you have done, the verses of Diderot, and from *La Pucelle*.' They then whispered among themselves: 'You see that he is gone mad;' for he preserved, all this time, the most serious and solemn manner. 'Do you not see that he is joking, and you know that, in the character of his jokes, there is always much of the marvellous.' 'Yes,' replied Chamfort, 'but his marvellousness is not cheerful; it savors too much of the gibbet; and when will all this happen?' 'Six years will not pass over, before all that I have said to you shall be accomplished.'

" 'Here are some astonishing miracles (and, this time, it was I myself who spoke), but you have not included me in your list.' 'But you will be there, as an equally extraordinary miracle; you will then be a Christian.'

" 'Vehement exclamations on all sides. 'Ah,' replied Chamfort, 'I am comforted; if *we* shall perish only when *La Harpe* shall be a Christian, we are immortal.'

" 'As for that,' then observed Madame la Duchesse de Grammont, 'we women, we are happy to be counted for nothing in these revolutions: when I say for nothing, it is not that we do not always mix ourselves up with them a little; but it is a received maxim that they take no notice of us, and of our sex.' 'Your sex, ladies, will not protect you this time; and you had far better meddle with nothing, for you will be treated entirely as men, without any difference whatever.' 'But what, then, are you really telling us of, Monsieur Cazotte? You are preaching to us the end of the world.' 'I know nothing on this subject; but what I do know is, that you, Madame la Duchesse, will be conducted to the scaffold, you and many other ladies with you, in the cart of the executioner, and with your hands tied behind your backs.' 'Ah! I hope that, in that case, I shall at least have a carriage hung in black.' 'No, madame; higher ladies than yourself will go, *like you*, in the common car, with their hands tied behind them.' 'Higher ladies! what! the princesses of the blood?' 'Still more exalted personages.' Here a sensible emotion pervaded the whole company, and the countenance of the host was dark and lowering; they began to feel that the joke was become too serious.

“Madame de Grammont, in order to dissipate the cloud, took no notice of the reply, and contented herself with saying in a careless tone: ‘*You see that he will not leave me even a confessor.*’ ‘No, madame, you will not have one—neither you, nor any one besides. The last victim to whom this favor will be afforded will be . . . . .’ He stopped for a moment. ‘Well! who then will be the happy mortal to whom this prerogative will be given?’ ‘’Tis the only one which he will have then retained—and that will be the king of France.’

“The master of the house rose hastily, and every one with him. He walked up to M. Cazotte, and addressed him with a tone of deep emotion: ‘My dear Monsieur Cazotte, this mournful joke has lasted long enough. You carry it too far—even so far as to derogate from the society in which you are, and from your own character.’ Cazotte answered not a word, and was preparing to leave, when Madame de Grammont, who always sought to dissipate serious thought, and to restore the lost gayety of the party, approached him, saying: ‘Monsieur the prophet, who has foretold us of our good fortune, you have told us nothing of your own.’ He remained silent for some time, with downcast eyes. ‘Madame, have you ever read the siege of Jerusalem in Josephus?’ ‘Yes! who has not read that! But answer as if I had never read it.’ ‘Well then, madame, during the siege, a man, for seven days in succession, went round the ramparts of the city, in sight of the besiegers and besieged, crying unceasingly, with an ominous and thundering voice: *Wo to Jerusalem!*—and the seventh time he cried: *Wo to Jerusalem—wo to myself!* And at that moment an enormous stone projected from one of the machines of the besieging army, and struck him and destroyed him.’

Joan of Arc’s case will appropriately follow that of Cazotte; it is also a matter of history, and may be relied on without the slightest hesitation. Like Socrates, she openly professed herself under the guidance of a familiar genius, whom she called St. Michael. She at length fell into the power of the English, by whom she was (as might be expected from the ignorance of the age), regarded as a witch; they tried her as a heretic and sorceress by an ecclesiastical tribunal, and after condemnation, burnt her at Rouen. I will take the account from Newnham:

“On the 12th of February, 1428, on which the disastrous battle of Rouvray-Saint-Denis was fought, Joan said to M. Robert de Baudricourt,

Governor of Vaucouleurs, that the king had suffered great losses before Orleans, and would experience further losses unless she were sent to him. The exactitude of this announcement determined Baudricourt to send her.

“The next day, on her departure, many persons asked Joan how she could possibly undertake this journey, since the whole country was overrun with soldiers; she answered that she should find the way clear. No accident happened to her, nor to those who accompanied her, and even very few difficulties during the whole journey, which lasted eleven days, through an enemy’s country, at the close of winter, over a distance of one hundred and fifty leagues, and intersected by several deep rivers.

“On the 27th of February, when she was about to be presented to the king, a man on horseback, who saw her passing, employed some blasphemous expressions. Joan heard him, and, turning her head, said, ‘Ha, dost thou blaspheme the name of God, and yet so near to death?’ In about an hour afterwards, this man fell into the water and was drowned.

“The following month, Joan informed the doctors, who were commissioned to examine her at Poitiers,—

“1. That the English would be beaten; that they would raise the siege of Orleans; and that this city would be delivered from the said English;

“2. That the king would be consecrated at Rheims;

“3. That the city of Paris would be restored to its loyalty;

“4. That the Duke of Orleans would return from England.

“The king, in council, having determined to send Joan to Orleans, they commissioned her to conduct a convoy of provisions, of which the place stood in the greatest need.” “It was observed to her, that it would be a difficult enterprise, considering its fortifications, and the English besiegers, who were strong and powerful. ‘By the help of my God,’ answered she, ‘we will put them into Orleans easily, and without any attempt to prevent us on the part of the English.’”

“The generals of Charles VII., not daring to take the route which Joan of Arc pointed out to them, the convoy was obliged to halt at some leagues from Orleans, from the want of water, and from adverse winds. Everybody was confounded and in grief; but Joan announced that the wind would soon change, and that the provisions would be easily thrown into the town, in spite of the English; all which was completely verified.

“The English retained one of the heralds whom Joan had sent to summon them to surrender;—they even wished to burn him alive;—and they wrote to the university of Paris to consult upon the subject: Joan assured them, that they would do him no harm.

“When Joan appeared on the redoubt called the boulevard de la Belle-Croix, to summon them to raise the siege, these loaded her with abuse, especially one of the officers, to whom Joan replied, that ‘he spoke falsely, and in spite of them all, they would soon depart; but *that he*

would never see it, and that many of his people would be killed. In fact, when the fort of Tournelles was taken this officer wished to make his escape by the bridge which separated the fort from the suburbs; but an arch gave way beneath his feet, and he, with all his men, were drowned.

“Having introduced the convoy of provisions and ammunition into Orleans, Joan foretold to the inhabitants, that in five days not an Englishman would remain before their walls.

“On the 6th of May, Joan informed her confessor, that on the next day she should be wounded above the bosom, while before the fort at the end of the bridge. And in fact she received a lance between the neck and the shoulder, which passed out nearly half a foot behind the neck.

“On the morning of the 7th, her host having invited her to partake of some fish which had been brought him, she desired him to keep it till night, because she would then bring him a stranger who would do his part in eating it. She added, that after having taken the Tournelles, she would repass the bridge—a promise which seemed impossible to any body; but which nevertheless was fulfilled, like all the other impossibilities.

“The irresolution of the king was the greatest punishment to Joan:—‘I shall only continue for a year, and a very little more,’ said she; ‘I must try to employ that year well.’

“The Duchesse d’Alençon was greatly alarmed, on seeing her husband at the head of the army, which was about to enforce the coronation of the king, at Rheims. Joan told her to fear nothing—that she would bring him back safe and sound, and in a better condition than he was at that moment.

“At the attack of Jargean, the Duc d’Alençon was attentively reconnoitering the outworks of the town, when Joan told him to remove from the spot on which he was standing, or that he would be killed by some warlike missile. The duke removed, and almost immediately afterwards, a gentleman of Anjou, by the name of M. de Lade, was struck in the very place which the duke had just left.

“The English generals, Talbot, Searles, and Falstaff, having arrived, with four thousand men, to the relief of the Castle of Beaugenie, in order to raise the siege of that place, Joan predicted that the English would not defend themselves—would be conquered, and that this triumph would be almost bloodless on the part of the royal army; and that there would be *very few*—not quite to say *no one*—killed of the French combatants. In truth, they lost but *one man*, and almost all the English were killed or taken.

“Joan had told the king not to fear any want of troops for the expedition to Rheims, for that there would be plenty of persons, and many would follow him; in truth, the army increased visibly from day to day and numbered twelve thousand men by the end of June, 1429.

“When the army had arrived before Troyes, that city shut its gates.

and refused to yield. After five days waiting, and useless efforts of capitulation, the majority of the council advised to return to Gien; but Joan declared that in less than three days she would introduce the king into the city, by favor or by force. The chancellor said that they would even wait six days, if they could be sure of the truth of her promises. 'Doubt nothing,' said she—'you will be master of the city *to-morrow*.' Immediately preparations were made for the projected assault, which so alarmed the inhabitants and their garrison, that they capitulated next day.

"Charles feared that the city of Rheims would oppose a long resistance to his arms, and that it would be difficult to make himself master of it, because he was deficient in artillery. 'Have no doubt,' said Joan, 'for the citizens of the town of Rheims will anticipate you. Before you are close to the city, the inhabitants will surrender.' On the 16th of July, the principal inhabitants of the city laid its keys at the feet of the king.

"During her captivity, Joan made the following predictions, on the first of March, 1430, in the presence of fifty-nine witnesses, whose names are given faithfully by M. le Brun de Charmettes:—'Before seven years are past, the English will abandon a larger prize than they have done before Orleans, and will lose everything in France. They will experience the severest loss they have ever felt in France; and this will be by a great victory which God will bestow upon the French.'

"Paris was actually retaken by the French, under the command of the Marshal de Richemont, and the Count de Dunois, on the 14th of April, 1436.

"As to the great victory which should prove so fatal to the English, M. le Brun thinks may be understood either the battle of Tormigny, gained by the French in 1450, and which resulted in the conquest of Normandy, or the battle of Castillon, fought in 1452, in which the renowned Gen. Talbot perished, and which completed the submission of la Guienne to France.

"In order to explain the expression, *will lose everything in France*, the same author recalls the fact, that the people in general restricted the term France to what had originally composed the immediate dominion of Hugo Capet and his successors, as l'Isle de France, l'Orléannais, le Berri, la Touraine, etc. Thus Joan of Arc, born at Domremy, at the extremity of la Champagne, said that St. Michael had ordered her to go into France.'

LADY. I have been reading a somewhat similar account, belonging, I presume, to the same class, in the "Use of the Body in Relation to the Mind," by Moore; he says:

"There is another form of supersensuous vision, for the existence of which we can scarcely discover sufficient reason unless to intimate an

undeveloped faculty, which, in another state, may be proper to man. The nature and character of this strange endowment will be best expressed in the language of one who believed himself to be possessed of it. Heinrich Zschokke, a man remarkable for the extent of his honorable labors as a statesman and an author, solemnly writes the following passage in his autobiography: 'It has happened to me sometimes, on my first meeting with strangers, as I silently listened to their discourse, that their former life, with many trifling circumstances therewith connected, or frequently some particular scene in that life, has passed quite involuntarily, and, as it were, dream-like, yet perfectly distinct, before me. During this time I usually feel so entirely absorbed in the contemplation of the stranger's life, that at last I no longer see clearly the face of the unknown wherein I undesignedly read, nor distinctly hear the voices of the speakers, which before served in some measure as a commentary on the text of their features. For a long time I held such visions as delusions of the fancy, and the more so as they showed me even the dress and emotions of the actors, rooms, furniture, and other accessories.' He was at length astonished to find his dream-pictures invariably confirmed as realities, and he relates this instance as an example of his visionary gift: 'One day, in the city of Waldshut, I entered an inn (the Vine) in company with two young students. We supped with a numerous company at the table d'hote, where the guests were making very merry with the peculiarities of the Swiss, with Mesmer's magnetism, Lavater's physiognomy, etc. One of my companions, whose national pride was wounded by their mockery, begged me to make some reply, particularly to a handsome young man who sat opposite to us, and who had allowed himself extraordinary license. This man's life was at that moment presented to my mind. I turned to him, and asked whether he would answer me candidly if I related to him some of the most secret passages of his life, I knowing as little of him personally as he did of me. He promised, if I were correct, to admit it frankly. I then related what my vision had shown me, and the whole company were made acquainted with the private history of the young merchant—his school years, his youthful errors, and, lastly, with a fault committed in reference to the strong-box of his principal. I described the uninhabited room with whitened walls, where, to the right of the brown door, on a table, stood a black money-box, etc. A dead silence prevailed during the whole narrative, which I alone occasionally interrupted by inquiring whether I spoke the truth. The startled young man confirmed every particular, and even, what I had scarcely expected, the last mentioned. Touched by his candor, I shook hands with him, and said no more. He is, probably, still living.'

## CONVERSATION IX.

### SOMNAMBULISM.

LADY. I have been reading Dendy's Philosophy of Mystery, and have marked a number of cases which seem to bear much resemblance to some of the stages of fascination.

He says that somnambulism is the most perfect paradox among the phenomena of sleep, as it exhibits actions without a consciousness of them; indeed so complete is suspension of sensibility that contact, nay, intense inflictions, do not produce that mental consciousness which is calculated to excite alarm or even attention.

He says that in London, 1833, a man was brought before Alderman Thorp, who had a parcel *cut from his arm*, although he had strapped it tightly on to prevent this, as he was often falling asleep during his walk. Yet, even then, he usually took the parcels to the proper directions.

The crew of a revenue boat, on the coast of Ireland, about two o'clock in the morning, picked up a man swimming in the water. He had, it appeared, left his house about twelve, and walked two miles over a most dangerous path, and had swam about one mile. After he was taken into the boat he could not be persuaded that he was not still in his warm bed at home.

In 1834, Marie Pan was admitted into the hospital at Bordeaux, France; her left arm and hand covered with

deep and bleeding gashes, its tendons projecting, and the bones broken. She had, in her sleep, gone into a loft to cut wood with a hedging bill; thinking she was cutting the wood, she had hacked her forearm and hand until she fainted away and fell, bathed in her own blood. She *had felt no pain*, but merely a sensation, as if the parts were pricked with pins.

In 1832 some fishermen near Brest, in France, were surprised at finding, at two o'clock in the morning, a boy about twelve years old, up to his waist in the sea, fishing for flounders, of which he drew up five or six. Their surprise, however, was increased to wonder when, on approaching him, they found he was *fast asleep*. He was taken home and put to bed, but was immediately afterward attacked with a raging fever.

In 18—, says the Augsburg Gazette, Dresden was the scene of a melancholy spectacle. As early as seven in the morning a female was seen walking on the roof of one of the loftiest houses in this city, apparently occupied in preparing some ornaments as a Christmas present. The house stood as it were alone, being much higher than those adjoining it, and to draw her from her perilous situation was impossible. Thousands of spectators had assembled in the streets. It was discovered to be a handsome girl, nineteen years of age, the daughter of a master baker, possessing a small independence, bequeathed to her by her mother. She continued her terrific promenade for hours, at times sitting on the parapet and dressing her hair. The police came to the spot, and various means of preservation were resorted to. In a few minutes the street was thickly strewn with straw, and beds were called for from the house, but the heartless father, influenced by the girl's step-

mother, refused them. Nets were suspended from the balcony of the first floor, and the neighbors fastened sheets to their windows. All this time the poor girl was walking in perfect unconsciousness, sometimes gazing at the sky, and at others singing or talking to herself. Some persons succeeded in getting on the roof, but dared not approach her for fear of the consequences if they awoke her. Towards eleven o'clock she approached the very verge of the parapet, leaned forward and gazed upon the multitude beneath; every one felt that the moment of the catastrophe had arrived. She rose up, however, and returned calmly to the window by which she had got out. When she saw there were lights in the room, she uttered a piercing shriek, which was re-echoed by thousands below, and fell dead into the street.

DOCTOR. You have extracted all that is worth noticing in the Philosophy of Mystery; for a man is certainly unfit to treat on physiology who believes, like Dendy, that electricity is the source of life, and who, driven to *confess the fact of the existence of several cases of apathetic trance produced by fascination*, which he quotes, says, "It is, I believe, quite true, that they were unconscious of the operation; but even this is not *safe*. *Pain is given us as warning against extreme injury, that by our complaint or suffering, the surgeon's mind may be on its guard.*"

Newnham says that the phenomena of somnambulism are established and recognized by the antagonists of fascination. And that in fact the knowledge of somnambulism rescues many of these natural phenomena from the alledged dominion of sorcery and of the black-art, under which they have been classed by the ignorant

and the short-sighted, and restores them to their proper position as the *natural effects of natural causes*.

Dendy, continually rushing into dilemmas from which he cannot extricate himself without overthrowing his former positions, remarks, "That whatever may be the influence imparted by *tractions*, the phenomena of *excited* somnambulism are similar or precisely to those *spontaneously* occurring." "In a word, mesmerism is true in part: it *may* induce catalepsy, somnambulism, exalted sensation, apathetic sensibility, suspended circulation, even death. Clairvoyance and prophecy *alone* are the impositions as regards its effects," etc.

In both cases the parties remember nothing whatever of the recurrences experienced in sleep-waking. The actions of many natural sleep-wakers explain the origin of many stories of pixey and fairy, who would enter, in some cases, the houses of their friends at night, and do up all their work for them, and in others cause much trouble, to whom they bore ill-will, by breaking their crockery, overturning chairs, etc. A tailor in this city, who worked for a shop which furnished suits made to order at twenty-four hours notice, had taken a coat to finish by the next morning, under the expectation of his wife assisting him. Arrived at home, his wife was ill, and unable to do anything to help him beyond sewing the sleeves. He worked steadily at his task during the day, but so much did his unusual efforts exhaust him, that despite himself he went to bed with a heavy heart, for he dreaded, with good reason, the loss of his situation from the disappointment of his employers. When roused at an early hour the next morning, he hastily prepared to resume his work, when, to his utter astonishment, he found the coat perfectly finished, and done too.

he confessed, in a much better manner than it was possible for him to do it. Immediately perceiving that it was the deed of his guardian angel, he fell on his knees and gave thanks. He told me that it was the only way in which the coat could have been made; for, on account of his exertions the preceding day, he was utterly incapable of working, *and the next morning could do little more than stand*. He had evidently risen in the night and finished the coat himself, and must have done this in complete darkness, for a light would have, in all probability, (owing to a peculiar state,) awakened his wife, and they had but one room.

Marcus, the freedman of Pliny, dreamed that a barber, sitting on his bed, had shaved him, and awoke well trimmed; Marcus had unconsciously shaved himself. Dendy mentions that early one morning, at a farm-house in Sussex, England, an immense number of foot-prints were observed by the men about a gate, which were not there over night. On their return the servant girl was relating her *dream*; that she was told the cows had got into a wrong field, and that she had gone out, opened the gate, and driven them back. She had been observed by one of the family *performing* her dream. A young gentleman at Brenstein was seen to rise, get out of his window on the roof, and take a brood of young magpies from their nest, and wrap them in his cloak. He then returned quietly to his bed, and in the morning *related his dream* to his two brothers. They had slept with him and witnessed this feat, of which he would not be persuaded until they showed him the birds in his cloak.

Dr. Gall relates a case of a Mr. Roggenback, who informed him, in the presence of many persons, that he

had been a somnambulist from infancy. In this state his tutor had made him read, look for places on the map, (and which he found more readily than awake,) and perform many other actions, all of which he performed more readily than in his waking moments. All this time his eyes would be open and fixed; he did not move them in the least, but would turn his head to vary their direction.

A story is credited to Professor Upham of Bowdoin College, relating to a farmer who rose in his sleep, went to his barn, and thrashed out five bushels of rye *in the dark*, separating the grain from the straw with great exactness. Captain Brown, of Portland, Me., while at sea, became very ill and confined to his berth. Those on board noticed a peculiar stiffness and rigidity of his limbs. Though encompassed by timber, and unable to go on deck, he saw distinctly all that passed around him; describing many vessels that passed his own, together with several at a great distance, at anchor; and told all that took place on board of them. His descriptions were confirmed in every instance where it was possible to make inquiry.

The letter of Mr. John Wise, of Lancaster, Pa., will aptly conclude our cases of natural somnambulism:—

“From the age of ten to fifteen, it was almost a nightly habit with me to get up from my bed and travel through the whole house, unbarring the doors and walking through the different apartments with the greatest ease in utter darkness, sometimes unlocking the back door, and travelling into the yard and out-houses, stopping at different places, and examining, apparently with the nicest precision, such articles as happened to fall in my way.

“Yet after being awakened, not the slightest recollection remained of what had happened. During some of these nocturnal excursions, I opened a dormer window, and crawled out thence to the very apex of the roof? On one of these occasions, after getting on the top of the house, I

was awakened by a slight shower of rain, and it was with difficulty I made a safe descent by way of the next neighbor's house, which obliged me to rouse the family in order to get back to my bed again.

“The most singular feat, however, that I performed in the somnambulatory state, was a situation that I got into, out of which I could not extricate myself again in a waking state, neither could I, upon trial, without the assistance of something to step on first, get into it again. The room in which I slept at this time, had in it an old-fashioned cradle of double length, made for twin babes. This was placed upon a long narrow keg, which stood on its ends, so that when standing alongside of it, the sides of the cradle came within two inches of my chin, and it was so poised, that a slight preponderance either way would capsize it. During one of my nocturnal perambulations in the middle of the night, by some means I got into this cradle, without the assistance of anything that would enable me to step up, save some strange inexplicable cause. It was a cold winter night, and I became awakened while in the act of pulling books from around me, which were in the cradle at the time. After being perfectly awakened, it required a great deal of caution to support my centre of gravity, until I had called the assistance of some of the family to enable me to get down.

“In the somnambulatory state, I am told my eyes are wide open, and have a glassy appearance. Although I would answer questions, and talk freely on subjects that were indicated by my conduct, yet it was next to impossible to awaken me by any other process than the application of cold water. After a more advanced age, these symptoms have taken a different form, my nightly perambulations being confined to my chamber, and they are more particularly connected with the organs of hearing and vision. It does appear, that, like the inner vision without the aid of the external eye, there is also a distinct faculty of hearing, independent of the external ear. This has been experienced by persons of my acquaintance. I have frequently hastened to the place from whence sounds appeared to come. Generally it appears to be the calling of my name, by persons whose voice I can recognize; but the most frequent delusions are through the eye. These symptoms, from their frequency, although not fearful in themselves, have been of late a source of annoyance, and they always occur in a half-waking condition. The clearer and smoother the chamber in which I sleep, the less am I annoyed with these delusions. Of these symptoms and their operations, I have a tolerable distinct recollection afterwards. I generally find myself sitting up in bed, in the act of getting up and moving towards the objects, which mostly appear to be human beings, and often persons of my acquaintance. Although this happens to me in a half-waking condition, still, I possess the faculty of reasoning within myself upon the necessity of not minding these delusions, but seldom become perfectly satisfied until I get up and try to touch the object but invariably get awake on being touched by another person.

After being awakened, it has often appeared to me that a conflict had been going on between the material and spiritual functions."

LADY. Is somnambulism ever induced by disease?

DOCTOR. There have been a great number of cases recorded by the medical profession, in which illness developed the faculty, and when restored to health it would be lost. Many of these cases present all the phenomena of induced prevision, clairvoyance, etc.; and, what will seem a strange fact regarding the matter, none ever think of doubting them, not even the most bitter opponents of fascination; yet speak of them in connection with fascination, and you will but excite their anger.

We find a case published by two French gentlemen of this character. The patient predicted a detail of the principal events that should happen to her in the course of the following years,—of the maladies to which she would be subjected,—of the remedies which would be necessary,—of the effect of these remedies,—of the crisis which she would experience,—and of the precise period of her cure; all of which were substantially correct and accomplished.

LADY. Do medicines ever produce symptoms similar to these?

DOCTOR. Quite a large number of cases produced by medicinal substance, are also recorded; the cases vary from those of intense mental exaltation and development of the intellectual powers, to catalepsy and trance.

Dr. O'Shaughnessy, describing the effects of Indian hemp, tells us that in a lad of excellent habits, ten drops of the tincture induced the most amusing effects. A shout of laughter ushered in the symptoms, and a *transition state of cataleptic rigidity*, occurred for two or

three minutes. He enacted the part of a rajah giving orders to his courtiers; he could recognize none of his fellow-students or acquaintances; all to his mind seemed as altered as his own condition; he spoke of many years having passed since his student days; described his teachers and friends with a piquancy a dramatist would envy; detailed the adventures of an imaginary series of years, his travels and his attainments of wealth and power; he entered on discussions of religious, scientific, and political topics with astonishing eloquence, and disclosed an extent of knowledge, reading, and a ready apposite wit, which those who knew him best were altogether unprepared for. For three hours and upwards he maintained the character he at first assumed, and with a degree of ease and dignity perfectly becoming his high assumption.

Similar facts were known in ancient times. The Thracians used to intoxicate themselves by casting the seeds of certain poisonous plants into a fire made for the purpose, around which they sat and inspired the narcotic fumes. Moore says that there can be no doubt that the incantations of witchcraft and magic were generally attended with the practice of burning herbs of a similar kind. *The ancients deemed certain temperaments essential to the reception of the divine efflatus*, and the melancholic was considered the most suitable, especially when aggravated by rigid abstinence and the use of narcotics, (this exactly suits Swedenborg, etc.) Pliny informs us that the soothsayers were accustomed to chew roots supposed to be of a certain species of henbane. The Hindoos employ the Indian hemp for the same purpose; and in St. Domingo the supposed prophets chew a plant called cohoba, that

they may be the better able to look into the unseen world and perceive the shadows of coming events. Sophocles called the priestesses of Delphos laurel eaters, because they were in the habit of chewing the leaves of that shrub before they mounted the tripod, etc., etc.

Townshend tells us of a sleep-waker who played beautifully on the flute, and was accustomed to improvise upon that instrument with all the musical genius he possessed; but the charming strain, once uttered, was lost forever. One day, in sleep-waking, being asked to write down a composition, he instantly seized music paper and a pen, and wrote down the air you observe on this paper. I need not mention that he was utterly incapable of such a display of talents in the waking state.

POUR LA FLUTE.

*f* > *f* > *f* > > > >

*ppp echo*

*f*

*ritenuto*

>

>

*ritenuto*

*p*

The following case of diseased somnambulism is taken from Mr. Sandby. It is related with singular truthfulness and accuracy.

“It is perfectly true, that our poor friend who has now been some months with us, presents one of those singular and almost incredible cases of hysterical or nervous affection, which are at distant intervals, witnessed under the dispensation of the Almighty.

“The overthrow of the regular functions of the nervous system, was occasioned by the almost sudden death of her father, to whom she was most fondly attached, who was seized with illness, during her absence from him, and died in a few hours after she returned to her home. I cannot enter into any longer details of the case, which has been attended with all those varieties, which have long characterized the complaint, among medical men as the Protean disorder. The extraordinary powers communicated to the *other senses by the temporary suspension of one or two of them*, are beyond credibility to all those who do not witness it; and I really seldom enter into any of the details, because it would be but reasonable, that those who have *not seen*, should doubt the reality of them. All colors she can distinguish with the greatest correctness by night or by day, whether presented to her on cloth, silk, muslin, wax, or even glass—and this I may safely say, as easily on *any part of the body as with the hands*, although, of course, the ordinary routine of such an exhibition of power, takes place with the hands,—the other being that of mere curiosity. Her delicacy of mind, and high tone of religious feeling, are such, that she has the greatest objection to make that which she regards in the light of a heavy affliction from God a matter of show or curiosity to others, although to ourselves, of course, all these unusual extravagances of nervous sensibility, are manifest, for at least twelve out of every twenty-four hours. She can not only *read with the greatest rapidity* any writing that is legible to us, music, etc., with the mere *passing of her fingers over it*, whether in a dark or light room, (for her *sight* is for the most part suspended, when under the influence of the attack, or paroxysm, although she is perfectly *sensible*,—nay, more *acute* and *clever* than in her natural state,) but within this month past, she has been able to collect the contents of any printing or MS., by merely laying her hand on the page, without *tracing* the lines or letters;—and I saw her last night only, *declare the contents of a note just brought into the room*, in this way, (when I could not decipher it myself without a candle,) and with a rapidity with which I could not have read it by daylight. I have seen her develop hand-writing by the application of a note to the back of her *hand, neck, or foot*; and she *can do* it at any time. There is nothing UNNATURAL in this, for of course the nervous susceptibility extends all over the surface of the body, but use and habit cause us to

limit its power more to the fingers. Many, even medical men, take upon themselves to declare, that *we* are all (her medical attendants as well) under a mere delusion. We ask none to believe anything, if they prefer not to do so, and only reply—The case is equally marvellous either way;—either that this our poor patient should be thus afflicted, or that eighteen or nineteen persons of my family and friends, in the daily habit of seeing her, should fancy she is for every twelve hours out of the twenty-four, doing at intervals, that which she is *not* doing. There are many exhibitions of extravagant powers which she possesses, *that we talk of to no one*; for finding it difficult to acquire credit for lesser things, we do not venture on the greater. *Her power ceases the moment the attack passes off.* A considerable swelling has at times been visible at the back of the head, which has yielded to the treatment.

“It is certainly a case which would be an instructive one, in the consideration of the physiology of the human frame: but she, poor thing! is most averse to experiments being purposely made on her;—but in her *every day life* among us, we have no lack of proof for all we believe and know.

“Between the attacks, she is as perfectly in a *natural state*, as ever she was in her life. There is but one *paradox* in her state; and that is, that she can at such times, hear *some* sounds and not *others*, though very much louder,—and see *some* things, and not *others*, though placed before her. She could hear a *tune whistled*, when she could not hear a gun fired close to her. It is certainly the absorption or absence of mind that occasions this; *absent* to some things, though *present* to *others*, like *any absent man*; and thus Dr. Y—— accounts for it.”

## CONVERSATION X.

### HISTORY OF FASCINATION.

DOCTOR. We have now reviewed, with a rapid glance, the six stages, curative effects, and natural conditions, simulating the phenomena of fascination. To complete our plan, I have compiled a brief history of the matter, which, with your permission, I will read.

LADY. I am anxious to hear it. It certainly appears strange to me that the matter should have been forgotten through the middle ages, and, until very lately, remain unknown.

DOCTOR. That it was known and practised is an undoubted fact, but it was, after the Christian era, confined to convents; and many a miracle at the tombs and other depositories of the relics of saints, may safely be referred to this agency of fascination. In some instances, the Esculapean visions, prescriptions, etc., were repeated. St. Gregory, bishop of Tours, tells of the efficacy of pilgrimages to the tombs of saints. Says he: "Any person filled with faith, coming near the tombs and praying, will be speedily cured of whatever illness may befall them. Some affirm that the saints appear to them in the night (of course while sleeping on or near the tomb), during their dreams, and reveal the proper remedies." For any number of similar instances, see accounts of St. Martin, Protegene, Moses of Lysbia, Julianus of Edessa, St. Litard, St. Fortunatus, etc., etc.

Leger quotes George Fabricius, who, in his *Commen-*

tary on Poets, 1720, p. 73, says that he saw, in Padua, country people who were going to the church of St. Anthony for the purpose of obtaining salutary visions during their sleep. "This," says Fabricius, "exactly resembles the ancient pagan worship. And in truth, even at the present day, the churches of saints are resorted to, to receive the same kind of revelations for curing disease."

The king of France, from the time of Clovis, was the royal fascinator of his day. Laurent tells us that one of the officers of Clovis was afflicted with scrofula; the king felt much concern for him, as the resources of medicine had been tried in vain. He dreamed, one night, that if he touched the officer's neck, it would become well; he arose in the morning and did so; from that time the power remained in his family.

Marino Cavalli, ambassador from Venice to France in 1546, thus describes the operation of touching for the scrofula. After giving a description of the reigning monarch, Francis, he says: "Like all the monarchs of France, he has received from heaven the singular gift of curing the evil. Even Spaniards flock hither to profit by this miraculous property. The ceremony takes place some solemn day, like Easter, or Christmas, or the festivals of the Virgin; the king first confesses and receives the sacrament, then makes the sign of the cross on the sick, saying: 'The king touches, may God cure thee!' If the sick were not restored, they would not, doubtless, flock hither so far; and since the number augments always, we must believe that God takes this method to deliver the infirm, and to increase, at the same time, the dignity of the crown of France." The power, however, it seems only remained with them

while virtuous; for the abbot of Nogent tells us that Philip the First, who at first possessed the gift when he ascended the throne in 1060, lost it by indulgence in vice.

Many other monarchs, determined not to be outdone, assumed the same power, not curing scrofula alone, but all other diseases; in one instance it was of singular benefit to one of the "Lord's anointed." James, the exiled king of England, engaged himself as a *toucher* for scrofula in the public hospitals of France. Fascination was also useful, in some cases, to the royal operators themselves: Tytler, speaking of Charles VI., tells us that "he once narrowly escaped being burned to death, and in consequence was seized with a dreadful fit of frenzy. To relieve him, they sent for a *magician* from Montpellier, and he became *somewhat better*."

We are told by Beniveni, a Florentine physician, that he had a young man under his care, who was wounded in the chest by an arrow, which surgical skill could not extract. After a time of great pain, this faculty of prevision became developed, and he told the day and hour when the arrow-head should issue from the wound, and the time of his perfect cure; said he would go to Rome, die there, etc., with many other strange particulars, all of which, to the astonishment of the narrator, happened exactly as he had predicted them.

In the eighty-fourth page of the *Life of the Queen of Navarre*, it tells, while lying at Metz, at the point of death, in consequence of a severe fever, she described the battle of Jarnac in every minute particular; told the victory of her son; his falling to the ground, death of the prince of Condé, and flight of the enemy; and the information was confirmed the next night, to the

astonishment of her attendants, who had thought her delirious while giving it.

Van Helmont tells us, that "there exists in man a certain energy which can act beyond his person, according to his will or imagination, and impart virtues, and exercise a durable influence, even on distant objects"

Cardanus at Naples, in 1501, performed extraordinary cures by fascination. He declared that nature had endowed him with strange faculties. He could go into sleep, waking at will, and in that state cure himself of an occasional attack of the gout, prescribe remedies, see at a distance, and correctly predict future events. For all these faculties he was imprisoned, as a sorcerer, at Bologna.

A volume might easily be filled with facts similar to the above. But it is unnecessary to recite them all; when once attention is awakened to the subject, enough can be found in our every-day reading and observation. Suffice it to say, that there is an uninterrupted chain of evidence from the earliest times to the present. I shall briefly, then, recount a few of the most remarkable, which I will mainly extract from Dr. C. R. Hall, a bitter opponent of fascination, but who, despite himself, gives such evidence in its favor—even his own experience proving it—that the perusal of his book, "The Rise, Progress, Mysteries," etc., etc., will convince any person of the reality of the subject he tries to injure, and also of his own silliness in endeavoring to make ridicule a test of truth.

In the seventeenth century there appeared in England a gardener, Levret, an Irish gentleman, Valentine Greatraks, and a Dr. Streper; and in Italy, Francisco Bagnone, etc., all of whom possessed the power of curing

diseases by touching or striking with the hand. The most celebrated of these, Greatraks is represented by the Lord Bishop of Derry, as being a simple, unpretending man, and sincerely pious. The same authority informs us, that not only had he *seen*, among other cures, “dimness cleared and deafness cured by his touch, etc., etc. ; running sores of the king’s evil dried up ; and kernels brought to a suppuration by his hand . grievous sores, of many months’ date, in a few days healed ; obstructions and stoppages removed ;” but “even cancerous knots in the breast dissolved.”

Gassner, in 1770, excited much attention in Germany and performed several miraculous cures. In 1794, a Count Thun appeared at Leipsic, professing to cure gout, palsy, and other complaints, by the imposition of his hands ; he was of a weak constitution, and his success would vary.

Mesmer was born in 1734. He was a severe student, and soon became a proficient and able physician. It has been truly observed that from time immemorial the mineral magnet was employed as a remedy in the cure of burns, and other injuries, but it was not until the sixteenth century, when alchemy was in its zenith, that its use as a remedy for internal diseases became general. At this time there was the earliest speculations on the extensive diffusion of the magnetic principle, which, as in our own day, was made to explain the motions of the planets and the laws of life.

Mesmer fell into the universal error, and commenced treating the sick by means of magnetized rods, which he obtained from Father Hell or Holl, a Jesuit, professor of Astronomy at Vienna. His great success astonished himself, and very much chagrined the professor

the consequence of which was an irreconcilable quarrel between the two. The acuteness of Mesmer soon led him to perceive that he might dispense with the rods, and that he could produce the same effects by merely drawing his own hands from above downwards in front of his patient.

His success in fascination was wonderful; for a great number of years nothing like it had been seen in Europe, and the fame of Mesmer spread rapidly. He left Vienna, and travelled through various towns and cities in Europe, met with considerable encouragement, finally returned, and then left for Paris, where we find him established in 1778. D'Eslon, one of the court physicians, was his first convert; others soon followed, and the majority of the Parisians declared in his favor. He finally surmounted the enmity of all his opponents, and retired with a large fortune, the result of his benevolent exertions, after founding a school of pupils, nearly all of whom became celebrated. The facts in his experiments were allowed by the French Academy of Medicine, but the idea of a fluid denied.

The Marquis de Puseygar, one of Mesmer's pupils, having, in March, 1784, fascinated his gardener, found that his patient was capable of holding a conversation while wrapped in induced somnambulism. He found, moreover, that the patient not only understood the words, but even the unexpressed thoughts of his master, and would answer with equal clearness the intended question while it was yet a mere suggestion of the mind, as after it had been conveyed to him in language. This was the origin (wrongly so called) of induced somnambulism.

In 1778 Perkins, an American surgeon practising in

London, invented and obtained a patent for his "metallic tractors." The tractors were merely small pieces of steel, strongly magnetized, (nothing more than a different form of the magnetized rod.) They were applied over the affected part, and gently moved about, touching the skin. Gout, rheumatism, toothache, and palsy, were a few of the diseases cured by the tractors, etc. Among those who publicly vouched for the truth of the wonderful cures performed by means of the tractors, were eight university professors, four being professors of medicine; twenty clergymen, ten being D.D.s; thirty-six medical men, nineteen being M. D.s.

To prove the error of these doctors of divinity and medicine, two men in Bath had precisely similar instruments made of wood, painted and shaped so as exactly to resemble the real ones. These were publicly tried with all due solemnity, at first upon five hospital patients. Of these four were affected with chronic rheumatism in the ankle, knee, wrist, and hips. The fifth had chronic gout. *All were much relieved.* One was sure that his knee was warmer, and thought that he could walk across the room. *He did so, though he had previously been unable to stir.* The following day the real metallic tractors were applied, with results precisely similar. Mr. Smith applied the wooden tractors to a patient with rheumatism of the shoulder, so severe as to prevent his raising his hand; *in four minutes the man was able to lift his hand.* In another patient the fictitious tractors caused so much increase of suffering, that he would on no account submit to a repetition of the operation. Had these sapient individuals but half the talent of Mesmer, they would soon have discovered the real source of action.

Fascination has been known and practised to a greater or less extent in the United States since the early part of the nineteenth century ; at the present time we have scores of lecturers traversing the country. The people receive it rather doubtingly ; they want some show of reasoning to sustain what they consider experiments against the laws of nature. To show the feeling I cannot do better than add an editorial from one of my exchanges. After describing the scene, performers, and examining committee, to the latter of which he belonged, he says :—

“ The first evening the lady’s eyes were bandaged so that the committee were satisfied she could not see. On Thursday night more than usual pains were taken. Adhesive plasters were put over her eyes, and they did positively adhere so closely to her skin that they were with difficulty removed. Over these, soft kid gloves were spread, over these again, a handkerchief was tied, secured above and below by tape strings.

“ It was an unusual and very severe test. Her eyes were, without doubt, IN TOTAL DARKNESS—in regard to that, there is no possible mistake ; but notwithstanding all our precautions in bandaging, SHE DID SEE. She read the names of a score of newspapers, and some of the smaller print on them—she read writing with a lead pencil—told the time by numerous watches, though set far from the true hour, and described the watches. She also read several bank notes.

“ She held the papers, etc., over her forehead, at the lower edge of her hair. While engaged in her readings she was very sprightly, and evinced considerable smartness—but we have not room for farther detail.

“ In regard to this matter, we can only say that we do not comprehend it. If it be trickery, it is splendid trickery. The jugglers of the East astound you, but they prepare all the machinery—here you are allowed to prepare the subject to your own satisfaction. In regard to the presumption that arises in the mind, as soon as we are convinced that she cannot see with her eyes, that there is some series of cunningly devised and secret signs by which communications are made to the young lady, we have to say, that watches and papers were given to her that no eye saw but our own, and yet she told as usual.

“ Our stubborn skepticism prompts us to say, that though witnessing such bewildering tests a thousand times, we would believe we were a thousand times deceived, before we would grant that she saw with her brain, up through her skull.”

LADY. I think there is evidence enough on the subject of fascination to convince the most incredulous, and were the matter of our conversation published, no one would rise from its perusal without being a thorough believer.

DOCTOR. In advancing the various arguments, I have merely reviewed the substance of the conclusions that have convinced myself. Some curious phenomena accidentally observed, led me to examine the matter closely, and the result has been, not only an entire conviction of its truth, but an equal conviction that that truth may be made so plain as to appeal to the common sense of all.

My knowledge of the subject has given me a clue to unravel much of the history of superstition in this world. I have found fascination to be a most terrible agent of imposture in all ages, as we have before seen Jehovah punished its practice among the Jews with death; that is, its practice as regarded the production of spiritual clairvoyance for purposes of divination: in other respects it was extensively known and practised as a curative agent. Witness the case of David, etc.

In our own day, Robert Cochrans, Joseph Smiths, Swedenborgs, etc., etc., are in turn gaining hosts of followers, and all through ignorance on this subject. Fascination, however, will most assuredly crush them, and so well is this fact known, that, perceiving its onward progress, many of them are even now endeavoring to wrest its phenomena to support their own views. Professor Bush says that the "Clairvoyance of Swedenborg was not induced by human agency." Granted. "That, unlike the magnetic seers, who are in a state of *internal*, but not at the same time of *exter-*

*nal* consciousness, Swedenborg was in both at once. *His prerogative was the opening of a SPIRITUAL sight, which left him still in the enjoyment of his NATURAL sight.* Hence he could know and distinctly describe in his state of external consciousness, what he saw with his spiritual eyes, and could know with perfect accuracy, free from all illusion, what was going on around him in the natural world, at the same time that he perceived what was transpiring in the spiritual world; and so perfectly was he in the possession of external consciousness while in the exercise of his spiritual perceptions, that on one occasion, when moving in a funeral procession, he was actually engaged in conversation with the spirit of the person whose body he was following to the grave."

If such be the case, and Swedenborg's supernatural claims rest on the fact of his seeing and holding communication with both worlds at once, then must a single well-authenticated fact, like that of the boy who possessed a similar power mentioned some pages back, overthrow all such claims, or indefinitely extend them; and this, too, without considering that Swedenborg's revelations were a natural sequence to his former philosophical speculations, and but confirmed them. However, as my object in these conversations was more to suggest thought than enter into detail, we will now end them.

LADY. Will you be kind enough to give me some directions with regard to the best manner of fascinating? As you think ladies as well as gentlemen can practise it, I would like to be able if ever called upon.

DOCTOR. With pleasure; and I do it the more readily because I know your motives in such cases would be

proper ones. It is certainly one of the most remarkable facts in the whole matter, that the moral feelings exercise an extraordinary influence. Philippe the First of France has not been the only one who lost the power by ill conduct; for the evil disposed often become curbed and shorn of their strength in a surprising manner.

Both patient and operator should be comfortably seated, so that neither will experience uneasiness in consequence of position. The seat of the operator should be higher than that of the patient—the apartment neither too hot nor too cold, and as few witnesses as possible, but one person always present. Never begin the process if agitated, but wait until perfectly calm and self-collected. When all is ready, seat yourself opposite the patient, inclining sideways, and taking his hands so that the inside of the thumbs of each press against the other, the hands resting on a knee of each; keep them in that position a few minutes, until an equal warmth is felt, gazing, after the first minute, steadily, but not with an effort, into his eyes. Still gazing, release his hands, and unite your own with the palms touching each other; then separate them to the right and left transversely, (remembering that while communicating the influence, the hands, when passing from the patient, must always have the back turned to him, and the reverse when taking him out of the state,) raise them to the head, let them rest on it a few moments, slowly carry them down the side and lower part of the head to the shoulders; allow them to rest a few moments there also, and then gradually pass down the arms to the end of the fingers which should be resting on the knees; all this time only the extremity of your own fingers should

touch, and that very gently ; at the end of each pass slightly shake your fingers, as if to throw something from them. You had better continue the passes, as a general rule, until the eyes of the patient close. Then allow your hands to rest two or three minutes on the head, and keeping your fingers in a crooked position, so as to directly point to but not touch the parts you traverse, pass slowly over the eyes and chest to the stomach, where the thumbs had better remain about twice as long as they did on the head, the fingers resting on the sides ; thence carry them down to the hips, knees, and feet. Do this a few times, and then confine your passes to the arms and body, without the head.

The sitting may continue from half an hour to two hours ; but forty minutes I have found a good average time. Of course, it depends, in a great measure, on the impressibility of the patient, and the degree of relief given. When it is desired to terminate it, make two or three passes from the knees to the feet ; then several transverse passes before the face and chest in a brisk manner.

Make up your mind, beforehand, not to be alarmed at any strange and unexpected symptoms that present themselves during the operation ; and whatever does occur, keep perfectly cool, and betray no agitation of manner ; if you let any signs of alarm escape you, your patient is almost certain to go off into convulsions. Mrs. W. came into my house, one day, in extreme pain, arising from a wrist that had been twice sprained ; at times her agony was dreadful, and opiates, etc., entirely failed to relieve her. A few passes down the arm and wrist gave ease, and finally, by continuing the process, the pain ceased ; at the end of twenty-four hours it re-

turned, and the same results followed the operation. The third time, I proposed putting her to sleep; after a while her eyes closed; she made a violent effort to open them, and, failing, became much frightened, and a cold perspiration broke out over her. I instantly reversed the passes; but it was some time, after awaking, before she became calm. She was afterward courageous enough, went to sleep without trouble, and became finally cured.

One of the first cases upon whom I ever operated was a Miss L. After a lapse of some ten minutes, she declared herself incapable of breathing, and I could not discern the pulse at the wrist. Her agitation became extreme; she said death would surely ensue, and wished her cousin, who was present, to call her mother. The cousin, equally with herself, was frightened; so much so, indeed, that she was incapable of obeying her request, though making great efforts to do so, seeming like a person with the nightmare. Though dreadfully agitated, I continued the passes, directing them altogether from the knees to the feet, and making some in in a transverse direction over the chest. She soon breathed and the heart beat; but, ere both actions were regularly established, she was insensible. I have rarely seen a person more benefited by the effects of fascination.

When you can be guided to the seat of pain, keep your fingers over the spot, and make the passes in that direction. Toothache, headache, sore-throat, rheumatism, etc., will vanish under such manipulation, often with a rapidity that equally astonishes the operator and the patient.

In operating, husband your strength as much as possible; use no more exertion than just enough to give

the requisite motion to the hands and arms. You will lose enough by imparting the nervous fluid, without unnecessarily increasing the debility. This is a common fault with young fascinators.

If the operator succeeds in giving relief from pain, he has produced the only phenomena he ought to expect. Do not allow the skepticism of those about you to rashly involve you in the mazes of experimenting on your patients. Point the unbeliever to the results; if he attributes them to imagination or anything else, don't dispute the matter—let him have his own way, without your interference. Have patience—bide your time—and your turn will come, and, when it does, will richly recompense the delay, and satisfy your curiosity. So great are the marvels, that our minds must be gradually prepared to receive them, or we could not bear the communication with safety.

Newnham remarks, that the most important and fundamental characteristic of a good operator is, on his part, the possession of sound thought and firm will; he must not employ his processes in a thoughtless or careless manner, or they will be unsuccessful; but he must really throw his mind into the duty—must be attentive to what he is about—must wish to do good—not allowing himself to wander into distant or discrepant scenes, but concentrating his will upon the object before him. He should be free from impertinent curiosity—a capital moral blemish in ordinary life, but still more so in magnetic pursuits—because the good of the patient is forgotten, the attention of the operator distracted, and fixed upon any object rather than his patient's health; in such cases, no satisfactory results can be expected.

Deleuze speaks of a process that may be employed

with great advantage in local pains ; this is, to place a piece of linen several times folded, or a fragment of woollen or cotton cloth upon the suffering part ; apply the mouth above it and breathe through it ; it excites a lively sensation of heat, and the breath, which is charged with the nervous fluid, introduces it into the system. Then expel the pain by passes.

Somnambulism (says Deleuze) demonstrates the two-fold existence of the *external* and *internal* man in a single individual. It offers a direct proof of the spirituality of the soul, and an answer to all objections made against its immortality. It makes evident the truth, known to the ancient sages, that *man is an intelligence, served by organs*. Never seek to produce it ; but when it comes naturally, profit by it as much as possible. It is dangerous to try to produce this state by directing passes to the head ; make them equally over the body. If nature is disposed to this crisis, the fluid will, of itself, be carried to the brain, and the tendency be manifested by the extreme tranquility of the patient. Then, after passing your fingers, five or six times, at a short distance before his eyes, ask him whether he sleeps, and if he answers in the affirmative, you may ask him regarding the treatment. Don't press questions, if he shows no disposition to speak : let him alone—it is of no consequence ; it is not your object to render him a sleep-waker, but to cure him. If such a state were necessary, it would spontaneously develop itself.

IN CONCLUSION, I WOULD REMARK, THAT THE ONLY OBJECT OF THE OPERATOR SHOULD BE TO CURE HIS PATIENT ; THIS CANNOT BE TOO STRONGLY INSISTED UPON. TRY NO EXPERIMENTS ; WAIT PATIENTLY, AND FOLLOW THE TEACHINGS OF NATURE.

## APPENDIX.

### COMMUNICATION FROM REV. MR. BEECHER, ON MAGNETISM.

“In October, 1842, on my way to the synod of Genesee, I spent the night at the house of Mr. Hall, at Byron. In the evening I called on Rev. Mr. Childs. On entering the room, I found his son, an intelligent boy aged ten years, then in a cataleptic fit, sitting in his father’s arms, and his feet in warm water.

“In a few moments he recovered. He frequently had from three to six fits a day—had received the best medical attendance in the region: was no better—daily worse. He had lost entirely the power of speech, for several days. Great fears were felt that he would never recover. There was a sore place on the back corner of his head, and on the spine, occasioned by a fall, some months previous. When the fits passed off he became hungry, and not at all drowsy; and during the interval appeared preternaturally bright, and engaged in sports with companions, as usual.

“After I had conversed a few minutes, I said, ‘I would have him magnetized;’ to which his father replied, ‘I don’t believe in it at all,’ and the mother added, ‘If you’ll put *me* to sleep, I’ll believe, and not without.’ I replied, ‘I would try it: it may do good, and can do no harm.’ During this conversation, I made a few passes in front of the child, chiefly with one hand, and without any particular concentration of the mind or will, and mostly with my face toward the mother. In less than a minute the father said, ‘He is in another fit! No, he isn’t, I declare: I believe he is asleep.’ Much surprised, (for I had never magnetized one,) I said, ‘It surely cannot be what I have done; but if so I can awaken him.’ Then, with a few reversed passes, he awoke. ‘Well, this is strange,’ said I; ‘but I can put him asleep again, if it is *real*.’ I then seriously repeated the passes, with both hands, for one or two minutes, and placed him in the perfect mesmeric sleep. I then fixed my eyes on a lady on the opposite side of the room, the boy not yet having spoken for three days, and said, ‘Henry, what do you see?’ in a full, decided voice. He replied, ‘Azubah.’ I then looked his mother in the face, saying, ‘What do you see?’ He gave a name unknown to me: I looked to his father, who replied, ‘It is her *maiden name*.’ I then took vinegar into my mouth, and said, ‘What do you taste?’ ‘*Vinegar*,’ speaking with great tartness, and at the same time making many contortions

of the face. The mother now whispered to one of the children, who left her seat, and I said, 'Henry, what is she going for?' 'Sugar, and I love it,' he answered. She went to the closet, and brought the sugar. I put some into my mouth, which seemed to give him the same pleasure as if I had put it in his own. I then said, 'What kind of sugar is it?' 'Muscovado.' 'What is its color?' 'Well, sir, a kind of light brown.' A small glass jar, with a large cork, was now placed in my hand, when immediately I observed the olfactory nerves affected, and the muscles about the nose contracted at the same moment. I said to the girl, 'What is it?' to which the boy answered, 'Hartshorn.' 'How do you know?' 'I smell it.' I myself neither knew nor smelt. I then took out the cork and applied it to my own nose, when he instantly placed his fingers on that part of the nose next the forehead, and said, 'I feel it here,'—just where I myself experienced the burning sensation.

"During all these experiments he sat on his father's knee, with his head down on his breast, and reclining against his father.

"I now asked him, 'What is the matter with you?' 'My brain is sore.' 'Where?' 'At the bottom of it.' 'Where it joins the spinal marrow,' (*medulla oblongata?*) 'Yes.' 'What occasioned it?' 'I fell from the great beam in the barn.' His mother here asked him, 'Why did you not tell us before?' 'I feared you would not let me play there.' 'Can Doct. A—— cure you?' 'No.' 'Why not?' 'He don't know anything about it,' (very decidedly.) 'Can Doct. C——?' 'No.' 'Why?' 'He don't understand it.' 'Will the medicine you now use do you good?' 'No.' 'Of what is it composed?' 'There is turpentine in it.' 'Does the Doctor give it you for tape-worm?' 'Yes.' 'Have you any?' 'No.' 'Would you like to walk?' 'Yes.' 'Well, walk.' He arose promptly, stepped between the chairs, and said, 'Well, sir, where shall I go?' 'From the wall to the door, and back.' This he did, avoiding every obstruction; and, at my direction, returned and sat again with his father. I now, without notice to any one, placed my finger on the organ of Benevolence, thinking at the moment it performed the office of Veneration, and said, 'Would you like to pray?' With some lightness, he said 'No.' Some questions were asked, by his mother and myself, about the Bible, etc.; but no Veneration appeared. I then recollected the true office of the organ, and said, 'Have you anything in your pocket?' He took out a knife. 'Give it to me for my little boy,'—which he did promptly. I removed my hand. 'Have you anything else?' 'I have a pencil.' 'Will you give me that for my other boy?' 'It has no head?' 'Never mind; give it—won't you?' 'I shouldn't like to.' 'Well, but you will!' 'I couldn't come it!' (*with peculiar emphasis.*) Azubah said, 'Ask him where the head of the pencil is.' 'Where is it, Henry?' 'Well, sir, in the parlor.' 'Where?' 'On the window.' Azubah said, 'Why, I picked it up and put it there to-day!' (*He certainly did not know this.*) I then said, 'Henry, can you get it?'

He arose, and went into the parlor in the dark, and took the head of the pencil-case from the window, to the very great surprise of us all. In deed, we were all so astonished, that it seemed a dream. During these and subsequent proceedings, he spoke with a promptness, boldness, and propriety, in advance of his years, and beyond himself in his natural state; and so perfectly evident was it that he was in a somnambulic state that no skeptic, I verily believe, *could* have doubted.

“At my request he returned to his seat. I touched Benevolence, and instantly he handed me the pencil-case. ‘For my boy?’ ‘Yes, sir.’ I then silently, and without any willing, and with a feeling of curiosity to see and test the matter, touched Reverence. His countenance at once assumed a softened and solemn aspect. ‘Henry, would you like to pray?’ ‘Yes, sir.’ ‘You may.’ He then commenced praying inaudibly. ‘You may pray aloud.’ He then prayed in a low, audible voice. On touching Tune, he sang a tune, though not in the habit of singing. On touching Combativeness and Destructiveness, he raised his clenched fist to strike me. He was ignorant of Phrenology, and also of my intention to touch any particular organ; nor did I, in any case, *will* the activity of the organ. I now took out my watch, and holding the dial towards myself, and above the line of his vision, his eyes being closed, and his head bowed forward, and my hand also being between him and the watch, I asked him, ‘Henry, what time is it?’ ‘Eight o’clock, sir,’—which was exactly the time by the watch, though by the clock in the room it was fifteen minutes faster. ‘Henry, how long ought you to sleep?’ ‘Well, sir, I must sleep two hours and five minutes.’ ‘Will you then awake?’ ‘Yes, sir.’ ‘Very well.’ This I did for the purpose of testing his knowledge of time, as stated by Townshend, an English clergyman, whose work on this subject I had read.

“I then said, ‘Will you go with me to Mr. Hall’s?’ ‘Yes.’ ‘Well, now we are there—now we are in the parlor: who is here?’ ‘Mr. and Mrs. Hall; Mr. and Mrs. Bardwell.’ ‘Who else?’ He did not give their names, but intimated that they were strangers. He described the room and position of things, all of which I found correct, on going to the house shortly after. These persons were not in the habit of being there in the evening, but company having come in, they were all together at that moment. As this was in his own town, I did not deem it *proof*, and so said, ‘Will you go to Batavia?’ ‘Yes.’ ‘Well, now we are there—now we are at my house—now we will go into my room: what do you see?’ ‘I see a large table covered with black cloth, and with books and papers scattered over it.’ ‘How large is it?’ ‘It is about five feet long.’ ‘How many book-cases?’ ‘Three, sir.’ ‘What sort of a stove?’ He could not or did not describe this, for it was so queer a thing as not to be easily described. Nor did I press him, for all his answers had been perfectly correct, and I was sufficiently astonished; for he had never seen my study; and no other minister, I am sure, has such a table, (five feet

by three and a half,) or has left it in such confusion as mine was at that moment.

“I may here say that, during the whole period of his sleep, he could hear the questions of others put to him, and would answer them, if I were willing; but if I willed otherwise, or forbade him to speak, as I often did, he then would answer no one but myself, not even father or mother; nor could he hear their conversation with me, nor with each other.

“I now left him for an hour, and went back to Mr. Hall’s, giving him leave to converse only with his father. On my return, I found him in the same state. He utterly refused to speak to any one but his father, and told him that he should not have another fit till the following Sabbath, (this was Monday evening,) which proved true; but when that day came, he had several.

“At nine o’clock and three minutes, holding my watch as before, and standing eight or nine feet from him, I asked the time. He gave ‘nine o’clock and five minutes.’ ‘Look sharp,’ said I. ‘Oh! three minutes,’ said he. We were now curious to see if he would awake himself at the two hours and five minutes, and as he did not awake when the clock in the room reached that time, I said, ‘Henry, did you mean by my watch, or by the clock?’ ‘By your watch, sir.’ ‘Very well.’ At the exact moment he opened his eyes and looked around, and this without any act or willing of mine; and what was very affecting and convincing, he could no longer speak at all, and was unconscious of all that he had said or done.

“I have said that he had no return of fits till the following Sabbath. One day after that Sabbath, he came in to his mother, much agitated, and apparently going into a fit; and making the passes, he solicited his mother to do it,—who, merely to pacify him, passed her fingers over him; and soon he fell into the mesmeric sleep, and escaped the fit. After this, he was so highly charged by his sister, that when she was in the next room, in the closet, he would instantly taste anything she tasted, eat what she ate, etc.

“In ten days I returned, and magnetized him again, and went through several of the above experiments. He always, while in the mesmeric state, declared that it benefited him, relieved all pain, and would cure him.

“After I left, at my suggestion, he was daily magnetized: his fits left him, his voice returned, the sore spots on his head and back were removed, and he recovered rapidly, till the family could no longer mesmerize him. A man in the village was found, who could and daily did, till he appeared entirely well. On omitting it he had a fit or two, and it was resumed; and when I last saw the father, he informed me that they considered the child cured.

“I may add, I have since cured toothache, greatly relieved tic dolo<sup>r</sup>eux

and removed other pains and swellings, as well as headache. I am not, however, a full believer in all which is affirmed of clairvoyants—what I see and know, I believe. In respect to many well-authenticated facts, I neither affirm nor deny. That there are many cases of gross deception and imposition, I fully believe. On such a subject, it can hardly be otherwise. This, however, is a reason why men of character and intelligence should *investigate* it, rather than otherwise. ‘But it is deception. Well, then, let us expose it by a fair trial. ‘But it is the work of the devil!’ How do you know? What is the evidence? What harm has it done? ‘Oh, bad men have used it for bad ends!’ And what is there in the world that has not been so used? If it is the work of the devil, then we are not to be ignorant of his devices, and should make the examination for one’s self; for ignorant and bad men will not expose his devices. From experiment and observation, I have no doubt that, as a remedial agent, mesmerism is yet to accomplish much good; and no harm can result from it, except, like all other blessings, it be abused.

“WILLIAM H. BEECHER.

“*Boston, June 28, 1843.*”

[Fowlers and Wells’ American Phrenological Journal]

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